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**County specific computer generated reports.*

ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Howard County, Nebraska: Out-of-date

Map symbol	Soil name	Acres	Percent
2Hb	Hobbs Silt Loam, Occasionally Flooded-----	5,880	1.6
2ThA	Thurman Loamy Fine Sand, Loamy Substratum, 0 To 3 Percent Slopes-----	2,337	0.6
2To	Tryon Soils, Drained-----	6,182	1.7
ARD	Arents, Earthen Dam-----	1	*
B	Blown-Out Land-----	441	0.1
Boa	Boel Loamy Fine Sand-----	1,764	0.5
Bob	Boel Fine Sandy Loam-----	1,019	0.3
Boc	Boel Loam-----	4,592	1.2
ChC	Coly Silt Loam, 5 To 11 Percent Slopes-----	16,390	4.5
ChD	Coly Silt Loam, 11 To 31 Percent Slopes-----	24,903	6.8
CUD	Coly-Uly Complex, 15 To 31 Percent Slopes-----	43,259	11.7
Da	Darr Fine Sandy Loam-----	496	0.1
Db	Darr Silt Loam-----	1,164	0.3
De	Detroit Silt Loam, 0 To 1 Percent Slopes-----	460	0.1
Ea	Elsmere Loamy Fine Sand-----	1,745	0.5
Gg	Gibbon Silt Loam-----	1,820	0.5
Gk	Grigston Silt Loam-----	742	0.2
GP	Gravel Pit-----	202	*
GsC3	Geary Soils, 7 To 11 Percent Slopes, Severely Eroded-----	394	0.1
GsD3	Geary Soils, 11 To 15 Percent Slopes, Severely Eroded-----	709	0.2
Ha	Hall Silt Loam, 0 To 1 Percent Slopes-----	2,255	0.6
Hb	Hobbs Silt Loam, 0 To 1 Percent Slopes-----	3,264	0.9
HbA	Hobbs Silt Loam, 1 To 3 Percent Slopes-----	8,581	2.3
HbB	Hobbs Silt Loam, 3 To 5 Percent Slopes-----	3,709	1.0
Hd	Hord Silt Loam, 0 To 1 Percent Slopes-----	13,818	3.8
Hg	Holder Silt Loam, 0 To 1 Percent Slopes-----	15,798	4.3
HgA	Holder Silt Loam, 1 To 3 Percent Slopes-----	22,590	6.1
HgB2	Holder Silt Loam, 3 To 5 Percent Slopes, Eroded-----	6,605	1.8
HgC	Holder Silt Loam, 5 To 11 Percent Slopes-----	4,361	1.2
HpC2	Holder Silty Clay Loam, 5 To 11 Percent Slopes, Eroded-----	13,427	3.6
HpC3	Holder Silty Clay Loam, 5 To 11 Percent Slopes, Severely Eroded-----	15,185	4.1
Hs	Hastings Silt Loam, 0 To 1 Percent Slopes-----	6,255	1.7
Ia	Inavale Loam-----	925	0.3
If	Inavale Fine Sand-----	5,451	1.5
Ig	Inavale Loamy Fine Sand-----	5,056	1.4
In	Inavale Fine Sandy Loam-----	721	0.2
INT	Aquolls-----	5	*
Ks	Kenesaw Silt Loam, 0 To 1 Percent Slopes-----	3,117	0.8
KsB	Kenesaw Silt Loam, 1 To 5 Percent Slopes-----	2,670	0.7
KsC	Kenesaw Silt Loam, 5 To 11 Percent Slopes-----	791	0.2
KSz	Kenesaw-Slickspots Complex-----	2,063	0.6
L	Loretto Complex, 0 To 5 Percent Slopes-----	2,809	0.8
La	Lamo Silt Loam-----	305	*
LB	Libory-Boelus Fine Sands-----	1,044	0.3
LC	Libory-Boelus Loamy Fine Sands-----	8,287	2.3
M	Marsh-----	385	0.1
M-W	Miscellaneous Water, Sewage Lagoon-----	18	*
NsD3	Nuckolls Soils, 15 To 31 Percent Slopes, Severely Eroded-----	2,527	0.7
Oa	Ovina Loamy Fine Sand-----	822	0.2
ObB	Ortello Loamy Fine Sand, 1 To 5 Percent Slopes-----	1,917	0.5
Oe	Ord Loam-----	3,991	1.1
Of	Ord Fine Sandy Loam-----	501	0.1
Ok	O'Neill Loam, 0 To 3 Percent Slopes-----	860	0.2
OrA	Ortello Fine Sandy Loam, 0 To 1 Percent Slopes-----	732	0.2
Ot	Ortello Loam, 0 To 1 Percent Slopes-----	1,277	0.3
OtB	Ortello Loam, 1 To 5 Percent Slopes-----	734	0.2
OxD	Ortello-Coly Complex, 15 To 31 Percent Slopes-----	482	0.1
RB	Rough Broken Land Loess-----	1,870	0.5
Ru	Rusco Silt Loam-----	1,838	0.5
Sm	Simeon Loamy Sand, 0 To 3 Percent Slopes-----	3,625	1.0
SS	Silver Creek-Slickspots Complex-----	1,281	0.3
Sy	Silty Alluvial Land-----	4,132	1.1
TfB	Thurman Fine Sand, 0 To 5 Percent Slopes-----	670	0.2
ThA	Thurman Loamy Fine Sand, 0 To 3 Percent Slopes-----	6,562	1.8
ThB	Thurman Loamy Fine Sand, 3 To 5 Percent Slopes-----	4,650	1.3
Ty	Tryon Loam-----	1,834	0.5
UsC	Uly Silt Loam, 5 To 11 Percent Slopes-----	7,129	1.9
UsD	Uly Silt Loam, 11 To 15 Percent Slopes-----	3,725	1.0
VaC	Valentine Fine Sand, Rolling-----	5,478	1.5
VTD	Valentine And Thurman Soils, 0 To 17 Percent Slopes-----	41,732	11.3
W	Water-----	5,943	1.6
	Total-----	368,307	100.0

* Less than 0.1 percent.

Nontechnical Soil Descriptions
Howard County, Nebraska

Nontechnical soil descriptions describe soil properties or management considerations specific to a soil map unit or group of map units, shown in the NonTechnical Descriptions report. These descriptions are written in terminology that Non-technical users of soil survey information can understand. Nontechnical soil descriptions are a powerful tool for creating reports. These high quality, easy to read reports can be generated by conservation planners and other NRCS employees for distribution to land users. Soil map unit descriptions and National Soil Information System records are the basis for these descriptions.

2Hb Hobbs Silt Loam, Occasionally Flooded

Hobbs soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level drainageway on upland. The runoff class is negligible. The parent material consists of stratified silty alluvium. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is occasionally flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Silty Overflow - Veg. Zone 3 range site. This soil is in the irrigated land capability class 2w. It is in the nonirrigated land capability classification 2w.

2Tha Thurman Loamy Fine Sand, Loamy Substratum, 0 To 3 Percent Slopes

Thurman soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping terrace on river valley, hillslope on upland. The runoff class is negligible. The parent material consists of sandy eolian deposits. This soil is somewhat excessively drained. The slowest permeability is rapid. It has a moderate available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Sandy - Veg. Zone 3 range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

2To Tryon Soils, Drained

Almeria soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on river valley. The runoff class is negligible. The parent material consists of sandy alluvium. This soil is poorly drained. The slowest permeability is moderate. It has a moderate available water capacity and a low shrink swell potential. This soil is occasionally flooded and is not ponded. The top of the seasonal high water table is at 9 inches. The soil contains a maximum amount of 5 percent calcium carbonate. This soil contains a very slightly saline horizon. This soil is in the Wet Subirrigated - Veg. Zone 3 range site. It is in the nonirrigated land capability classification 5w.

B Blown-Out Land

Psammets soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a moderately sloping to moderately steep upland. The runoff class is very low. The parent material consists of eolian sands. This soil is excessively drained. The slowest permeability is rapid. It has a low available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. It is in the nonirrigated land capability classification 7e.

Boa Boel Loamy Fine Sand

Boel soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on river valley. The runoff class is negligible. The parent material consists of sandy alluvium. This soil is somewhat poorly drained. The slowest permeability is rapid. It has a low available water capacity and a low shrink swell potential. This soil is rarely flooded and is not ponded. The top of the seasonal high water table is at 27 inches. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Subirrigated - Veg. Zone 3 range site. This soil is in the irrigated land capability class 4w. It is in the nonirrigated land capability classification 4w.

Bob Boel Fine Sandy Loam

Boel soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on river valley. The runoff class is negligible. The parent material consists of sandy alluvium. This soil is somewhat poorly drained. The slowest permeability is moderately rapid. It has a low available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 27 inches. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Subirrigated - Veg. Zone 3 range site. This soil is in the irrigated land capability class 3w. It is in the nonirrigated land capability classification 3w.

Boc Boel Loam

Boel soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on river valley. The runoff class is negligible. The parent material consists of sandy alluvium. This soil is somewhat poorly drained. The slowest permeability is moderate. It has a moderate available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 27 inches. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Subirrigated - Veg. Zone 3 range site. This soil is in the irrigated land capability class 3w. It is in the nonirrigated land capability classification 3w.

Nontechnical Soil Descriptions--Continued
Howard County, Nebraska

CbC Coly Silt Loam, 5 To 11 Percent Slopes

Coly soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a moderately sloping to strongly sloping interfluvium on upland. The runoff class is medium. The parent material consists of fine-silty calcareous loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Limy Upland - Veg. Zone 3 range site. This soil is in the irrigated land capability class 4e. It is in the nonirrigated land capability classification 4e.

CbD Coly Silt Loam, 11 To 31 Percent Slopes

Coly soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a strongly sloping to steep upland. The runoff class is high. The parent material consists of fine-silty calcareous loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Limy Upland - Veg. Zone 3 range site. It is in the nonirrigated land capability classification 6e.

CUD Coly-Uly Complex, 15 To 31 Percent Slopes

Coly soil makes up 60 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a moderately steep to steep upland. The runoff class is high. The parent material consists of fine-silty calcareous loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Limy Upland - Veg. Zone 3 range site. It is in the nonirrigated land capability classification 6e.

Uly soil makes up 40 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a moderately steep to steep <geomorphology is missing>. The runoff class is high. The parent material consists of fine-silty calcareous loess. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 15 percent calcium carbonate. This soil is in the Silty - Veg. Zone 3 range site. It is in the nonirrigated land capability classification 6e.

Da Darr Fine Sandy Loam

Darr soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level flood plain on river valley. The runoff class is negligible. The parent material consists of loamy alluvium over sandy and gravelly alluvium. This soil is somewhat excessively drained. The slowest permeability is moderately rapid. It has a low available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Sandy Lowland - Veg. Zone 3 range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 2e.

Db Darr Silt Loam

Darr soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level -- Error in Exists On --. The runoff class is negligible. The parent material consists of loamy alluvium over sandy and gravelly alluvium. This soil is somewhat excessively drained. The slowest permeability is moderate. It has a low available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Sandy Lowland - Veg. Zone 3 range site. This soil is in the irrigated land capability class 2s. It is in the nonirrigated land capability classification 2s.

De Detroit Silt Loam, 0 To 1 Percent Slopes

Detroit soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level flood plain on river valley. The runoff class is negligible. The parent material consists of silty alluvium over loess. This soil is moderately well drained. The slowest permeability is slow. It has a high available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. It has a horizon that is slightly sodic. This soil is in the Silty Lowland - Veg. Zone 3 range site. This soil is in the irrigated land capability class 1 It is in the nonirrigated land capability classification 2c.

Ea Elsmere Loamy Fine Sand

Elsmere soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping terrace on river valley. The runoff class is negligible. The parent material consists of sandy alluvium and/or eolian sands. This soil is somewhat poorly drained. The slowest permeability is rapid. It has a low available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 27 inches. This soil is in the Subirrigated - Veg. Zone 3 range site. This soil is in the irrigated land capability class 3w. It is in the nonirrigated land capability classification 3w.

Nontechnical Soil Descriptions--Continued
Howard County, Nebraska

Gg Gibbon Silt Loam

Gibbon soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping <geomorphology is missing>. The runoff class is negligible. The parent material consists of stratified calcareous silty alluvium. This soil is somewhat poorly drained. The slowest permeability is moderate. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 27 inches. The soil contains a maximum amount of 15 percent calcium carbonate. It has a horizon that is slightly sodic. This soil is in the Subirrigated - Veg. Zone 3 range site. This soil is in the irrigated land capability class 2w. It is in the nonirrigated land capability classification 2w.

Gibbon soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on river valley. The runoff class is negligible. The parent material consists of stratified calcareous silty alluvium. This soil is somewhat poorly drained. The slowest permeability is moderate. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 27 inches. The soil contains a maximum amount of 15 percent calcium carbonate. It has a horizon that is slightly sodic. This soil is in the Subirrigated - Veg. Zone 3 range site. This soil is in the irrigated land capability class 2w. It is in the nonirrigated land capability classification 2w.

Gk Grigston Silt Loam

Grigston soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level flood plain, river valley. The runoff class is negligible. The parent material consists of calcareous alluvium. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Silty Lowland - Veg. Zone 3 range site. This soil is in the irrigated land capability class 1 It is in the nonirrigated land capability classification 1.

GsC3 Geary Soils, 7 To 11 Percent Slopes, Severely Eroded

Nuckolls Variant soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a strongly sloping upland. The runoff class is high. The parent material consists of Loess. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Silty - Veg. Zone 3 range site. This soil is in the irrigated land capability class 4e. It is in the nonirrigated land capability classification 4e.

GsD3 Geary Soils, 11 To 15 Percent Slopes, Severely Eroded

Nuckolls Variant soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a strongly sloping to moderately steep upland. The runoff class is high. The parent material consists of loess. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Silty - Veg. Zone 3 range site. It is in the nonirrigated land capability classification 6e.

Ha Hall Silt Loam, 0 To 1 Percent Slopes

Hall soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level terrace on river valley. The runoff class is negligible. The parent material consists of loess. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Silty Lowland - Veg. Zone 3 range site. This soil is in the irrigated land capability class 1 It is in the nonirrigated land capability classification 2c.

Hb Hobbs Silt Loam, 0 To 1 Percent Slopes

Hord soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level terrace on river valley. The runoff class is negligible. The parent material consists of colluvium and/or loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Silty Lowland - Veg. Zone 3 range site. This soil is in the irrigated land capability class 1 It is in the nonirrigated land capability classification 2c.

HbA Hobbs Silt Loam, 1 To 3 Percent Slopes

Hord soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a gently sloping terrace on river valley. The runoff class is low. The parent material consists of colluvium and/or loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Silty Lowland - Veg. Zone 3 range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 2e.

NONTECHNICAL SOIL DESCRIPTIONS--Continued
Howard County, Nebraska

HbB Hobbs Silt Loam, 3 To 5 Percent Slopes

Hord soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a moderately sloping <geomorphology is missing>. The runoff class is low. The parent material consists of colluvium and/or loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Silty - Veg. Zone 3 range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

Hd Hord Silt Loam, 0 To 1 Percent Slopes

Hord soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level terrace on river valley. The runoff class is negligible. The parent material consists of colluvium and/or loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Silty Lowland - Veg. Zone 3 range site. This soil is in the irrigated land capability class 1. It is in the nonirrigated land capability classification 2c.

Hg Holder Silt Loam, 0 To 1 Percent Slopes

Holdrege soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level upland. The runoff class is low. The parent material consists of loess. This soil is well drained. The slowest permeability is moderately slow. It has a very high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Silty - Veg. Zone 3 range site. This soil is in the irrigated land capability class 1. It is in the nonirrigated land capability classification 2c.

HgA Holder Silt Loam, 1 To 3 Percent Slopes

Holdrege soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a gently sloping upland. The runoff class is medium. The parent material consists of loess. This soil is well drained. The slowest permeability is moderately slow. It has a very high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Silty - Veg. Zone 3 range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 2e.

HgB2 Holder Silt Loam, 3 To 5 Percent Slopes, Eroded

Holdrege soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a moderately sloping upland. The runoff class is medium. The parent material consists of loess. This soil is well drained. The slowest permeability is moderately slow. It has a very high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Silty - Veg. Zone 3 range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

HgC Holder Silt Loam, 5 To 11 Percent Slopes

Holdrege soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a moderately sloping to strongly sloping upland. The runoff class is high. The parent material consists of loess. This soil is well drained. The slowest permeability is moderately slow. It has a very high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Silty - Veg. Zone 3 range site. This soil is in the irrigated land capability class 4e. It is in the nonirrigated land capability classification 4e.

HpC2 Holder Silty Clay Loam, 5 To 11 Percent Slopes, Eroded

Holdrege soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a moderately sloping to strongly sloping upland. The runoff class is high. The parent material consists of loess. This soil is well drained. The slowest permeability is moderately slow. It has a very high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Silty - Veg. Zone 3 range site. This soil is in the irrigated land capability class 4e. It is in the nonirrigated land capability classification 4e.

HpC3 Holder Silty Clay Loam, 5 To 11 Percent Slopes, Severely Eroded

Holdrege Variant soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a moderately sloping to strongly sloping upland. The runoff class is high. The parent material consists of loess. This soil is well drained. The slowest permeability is moderately slow. It has a very high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Silty - Veg. Zone 3 range site. This soil is in the irrigated land capability class 4e. It is in the nonirrigated land capability classification 4e.

Nontechnical Soil Descriptions--Continued
Howard County, Nebraska

Hs Hastings Silt Loam, 0 To 1 Percent Slopes

Harney soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level upland. The runoff class is low. The parent material consists of loess. This soil is well drained. The slowest permeability is slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Silty - Veg. Zone 3 range site. This soil is in the irrigated land capability class 1 It is in the nonirrigated land capability classification 2c.

Ia Inavale Loam

Inavale soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping river valley on flood plain. The runoff class is negligible. The parent material consists of sandy alluvium. This soil is excessively drained. The slowest permeability is moderately rapid. It has a low available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Sandy Lowland - Veg. Zone 3 range site. This soil is in the irrigated land capability class 2s. It is in the nonirrigated land capability classification 2s.

If Inavale Fine Sand

Inavale soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level to moderately sloping flood plain on river valley. The runoff class is negligible. The parent material consists of sandy alluvium. This soil is excessively drained. The slowest permeability is rapid. It has a low available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Sandy Lowland - Veg. Zone 3 range site. This soil is in the irrigated land capability class 4e. It is in the nonirrigated land capability classification 6e.

Ig Inavale Loamy Fine Sand

Inavale soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level to moderately sloping flood plain on river valley. The runoff class is negligible. The parent material consists of sandy alluvium. This soil is excessively drained. The slowest permeability is rapid. It has a low available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Sandy Lowland - Veg. Zone 3 range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 4e.

In Inavale Fine Sandy Loam

Inavale soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on river valley. The runoff class is negligible. The parent material consists of sandy alluvium. This soil is excessively drained. The slowest permeability is moderately rapid. It has a low available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Sandy Lowland - Veg. Zone 3 range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

INT Aquolls

Aquolls soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level depression. The runoff class is negligible. The parent material consists of alluvium. This soil is very poorly drained. It has a very low available water capacity and a low shrink swell potential. This soil is not flooded and is occasional ponded. The top of the seasonal high water table is at 0 inches. It is in the nonirrigated land capability classification 5w.

Ks Kenesaw Silt Loam, 0 To 1 Percent Slopes

Kenesaw soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level upland. The runoff class is negligible. The parent material consists of calcareous loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Silty - Veg. Zone 3 range site. This soil is in the irrigated land capability class 1 It is in the nonirrigated land capability classification 2c.

KsB Kenesaw Silt Loam, 1 To 5 Percent Slopes

Kenesaw soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a gently sloping upland. The runoff class is low. The parent material consists of calcareous loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Silty - Veg. Zone 3 range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 2e.

Nontechnical Soil Descriptions--Continued
Howard County, Nebraska

KsC Kenesaw Silt Loam, 5 To 11 Percent Slopes

Kenesaw soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a moderately sloping to strongly sloping upland. The runoff class is medium. The parent material consists of calcareous loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Silty - Veg. Zone 3 range site. This soil is in the irrigated land capability class 4e. It is in the nonirrigated land capability classification 4e.

KSz Kenesaw-Slickspots Complex

Kenesaw soil makes up 70 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level terrace on river valley. The runoff class is negligible. The parent material consists of calcareous loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Silty - Veg. Zone 3 range site. This soil is in the irrigated land capability class 1. It is in the nonirrigated land capability classification 2c.

Cozad soil makes up 30 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level terrace on river valley. The runoff class is negligible. The parent material consists of coarse-silty alluvium. This soil is moderately well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 54 inches. The soil contains a maximum amount of 5 percent calcium carbonate. This soil contains a slightly saline horizon, it has a horizon that is moderately sodic. This soil is in the Silty Lowland - Veg. Zone 3 range site. This soil is in the irrigated land capability class 3s. It is in the nonirrigated land capability classification 4s.

L Loretto Complex, 0 To 5 Percent Slopes

Loretto soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping terrace on river valley. The runoff class is negligible. The parent material consists of loamy eolian deposits. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Silty - Veg. Zone 3 range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 2e.

La Lamo Silt Loam

Lamo soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping terrace on river valley. The runoff class is negligible. The parent material consists of loamy alluvium. This soil is somewhat poorly drained. The slowest permeability is moderate. It has a very high available water capacity and a moderate shrink swell potential. This soil is occasionally flooded and is not ponded. The top of the seasonal high water table is at 24 inches. The soil contains a maximum amount of 15 percent calcium carbonate. This soil is in the Subirrigated - Veg. Zone 3 range site. This soil is in the irrigated land capability class 2w. It is in the nonirrigated land capability classification 2w.

LB Libory-Boelus Fine Sands

Libory soil makes up 70 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping terrace on river valley. The runoff class is negligible. The parent material consists of eolian sands over loess. This soil is moderately well drained. The slowest permeability is moderately slow. It has a high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 27 inches. This soil is in the Sandy Lowland - Veg. Zone 3 range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 4e.

Boelus soil makes up 30 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping terrace on river valley. The runoff class is negligible. The parent material consists of eolian sands over silty eolian deposits. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Sandy - Veg. Zone 3 range site. This soil is in the irrigated land capability class 4e. It is in the nonirrigated land capability classification 4e.

LC Libory-Boelus Loamy Fine Sands

Libory soil makes up 75 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping terrace on river valley. <runoff is missing> The parent material consists of eolian sands over loess. This soil is moderately well drained. The slowest permeability is moderate. It has a high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 27 inches. This soil is in the Sandy Lowland - Veg. Zone 3 range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

Nontechnical Soil Descriptions--Continued
Howard County, Nebraska

Boelus soil makes up 25 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping terrace on river valley. <runoff is missing> The parent material consists of eolian sands over silty eolian deposits. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Sandy - Veg. Zone 3 range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

M Marsh

Fluvaquents soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level flood plain. The runoff class is negligible. The parent material consists of silty alluvium. This soil is very poorly drained. The slowest permeability is moderately slow. It has a high available water capacity and a low shrink swell potential. This soil is frequently flooded and is not ponded. The top of the seasonal high water table is at 0 inches. The soil contains a maximum amount of 5 percent calcium carbonate. It is in the nonirrigated land capability classification 8w.

NsD3 Nuckolls Soils, 15 To 31 Percent Slopes, Severely Eroded

Nuckolls Variant soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a moderately steep to steep upland. The runoff class is high. The parent material consists of loess. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Silty - Veg. Zone 3 range site. It is in the nonirrigated land capability classification 6e.

Oa Ovina Loamy Fine Sand

Ovina soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping terrace on river valley. The runoff class is very low. The parent material consists of loamy eolian deposits over loamy alluvium. This soil is somewhat poorly drained. The slowest permeability is moderate. It has a high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 24 inches. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Subirrigated - Veg. Zone 3 range site. This soil is in the irrigated land capability class 3w. It is in the nonirrigated land capability classification 3w.

ObB Ortello Loamy Fine Sand, 1 To 5 Percent Slopes

Ortello soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a gently sloping terrace on river valley. The runoff class is very low. The parent material consists of sandy eolian deposits. This soil is well drained. The slowest permeability is moderately rapid. It has a moderate available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Sandy - Veg. Zone 3 range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

Oe Ord Loam

Ord soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping river valley on terrace. The runoff class is very low. The parent material consists of stratified sandy alluvium. This soil is somewhat poorly drained. The slowest permeability is moderate. It has a low available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 27 inches. The soil contains a maximum amount of 40 percent calcium carbonate. It has a horizon that is slightly sodic. This soil is in the Subirrigated - Veg. Zone 3 range site. This soil is in the irrigated land capability class 2w. It is in the nonirrigated land capability classification 2w.

Of Ord Fine Sandy Loam

Ord soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping <geomorphology is missing>. The runoff class is negligible. The parent material consists of stratified sandy alluvium. This soil is somewhat poorly drained. The slowest permeability is moderately rapid. It has a low available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 27 inches. The soil contains a maximum amount of 40 percent calcium carbonate. It has a horizon that is slightly sodic. This soil is in the Subirrigated - Veg. Zone 3 range site. This soil is in the irrigated land capability class 2w. It is in the nonirrigated land capability classification 2w.

Ok O'Neill Loam, 0 To 3 Percent Slopes

O'Neill soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping river valley, -- Error in Exists On --. The runoff class is very low. The parent material consists of coarse-loamy alluvium over sandy and gravelly alluvium. This soil is well drained. The slowest permeability is moderate. It has a low available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Sandy - Veg. Zone 3 range site. This soil is in the irrigated land capability class 2s. It is in the nonirrigated land capability classification 2c.

NONTECHNICAL SOIL DESCRIPTIONS--Continued
Howard County, Nebraska

OrA Ortello Fine Sandy Loam, 0 To 1 Percent Slopes

Ortello soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level upland, terrace on river valley. The runoff class is negligible. The parent material consists of sandy eolian deposits. This soil is well drained. The slowest permeability is moderately rapid. It has a moderate available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Sandy - Veg. Zone 3 range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 2e.

Ot Ortello Loam, 0 To 1 Percent Slopes

Ortello soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level upland, terrace on river valley. The runoff class is negligible. The parent material consists of sandy eolian deposits. This soil is well drained. The slowest permeability is moderate. It has a moderate available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Sandy - Veg. Zone 3 range site. This soil is in the irrigated land capability class 1. It is in the nonirrigated land capability classification 1.

OtB Ortello Loam, 1 To 5 Percent Slopes

Ortello soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a gently sloping to moderately sloping upland, terrace on river valley. The runoff class is very low. The parent material consists of sandy eolian deposits. This soil is well drained. The slowest permeability is moderate. It has a moderate available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Sandy - Veg. Zone 3 range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 2e.

OxD Ortello-Colo Complex, 15 To 31 Percent Slopes

Ortello soil makes up 60 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a moderately steep to steep upland. The runoff class is medium. The parent material consists of sandy eolian deposits. This soil is well drained. The slowest permeability is moderately rapid. It has a high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Sandy - Veg. Zone 3 range site. It is in the nonirrigated land capability classification 6e.

Colo soil makes up 40 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a moderately steep to steep upland. The runoff class is high. The parent material consists of fine-silty calcareous loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Limy Upland - Veg. Zone 3 range site. It is in the nonirrigated land capability classification 6e.

RB Rough Broken Land Loess

Colo soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a steep to very steep upland. The runoff class is high. The parent material consists of fine-silty calcareous loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Thin Loess - Veg. Zone 3 range site. It is in the nonirrigated land capability classification 7e.

Ru Rusco Silt Loam

Rusco soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level terrace on river valley. The runoff class is negligible. The parent material consists of loamy eolian deposits over silty alluvium. This soil is moderately well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is occasionally flooded and is not ponded. The top of the seasonal high water table is at 36 inches. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Silty Overflow - Veg. Zone 3 range site. This soil is in the irrigated land capability class 2w. It is in the nonirrigated land capability classification 2w.

Sm Simeon Loamy Sand, 0 To 3 Percent Slopes

Simeon soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping terrace on river valley. The runoff class is negligible. The parent material consists of sandy and gravelly alluvium. This soil is excessively drained. The slowest permeability is rapid. It has a low available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Shallow To Gravel - Veg. Zone 3 range site. This soil is in the irrigated land capability class 4s. It is in the nonirrigated land capability classification 6s.

NONTECHNICAL SOIL DESCRIPTIONS--Continued
Howard County, Nebraska

SS Silver Creek-Slickspots Complex

Silver Creek soil makes up 65 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping terrace on river valley. The runoff class is negligible. The parent material consists of alluvium. This soil is somewhat poorly drained. The slowest permeability is slow. It has a high available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 27 inches. The soil contains a maximum amount of 15 percent calcium carbonate. This soil contains a slightly saline horizon, it has a horizon that is slightly sodic. This soil is in the Subirrigated - Veg. Zone 3 range site. This soil is in the irrigated land capability class 3w. It is in the nonirrigated land capability classification 3w.

Slickspots soil makes up 35 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping <geomorphology is missing>. The runoff class is low. <parent material is missing> This soil is moderately well drained. The slowest permeability is very slow. It has a moderate available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 54 inches. The soil contains a maximum amount of 5 percent calcium carbonate. This soil contains a moderately saline horizon, it has a horizon that is strongly sodic. This soil is in the Saline Lowland - Veg. Zone 3 range site. This soil is in the irrigated land capability class 4s. It is in the nonirrigated land capability classification 4s.

Sy Silty Alluvial Land

Hobbs soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping drainageway on upland. The runoff class is negligible. The parent material consists of stratified silty alluvium. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is frequently flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Silty Overflow - Veg. Zone 3 range site. It is in the nonirrigated land capability classification 6w.

TfB Thurman Fine Sand, 0 To 5 Percent Slopes

Thurman soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a moderately sloping terrace on river valley. The runoff class is negligible. The parent material consists of sandy eolian deposits. This soil is somewhat excessively drained. The slowest permeability is rapid. It has a low available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Sandy - Veg. Zone 3 range site. This soil is in the irrigated land capability class 4e. It is in the nonirrigated land capability classification 4e.

ThA Thurman Loamy Fine Sand, 0 To 3 Percent Slopes

Thurman soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping terrace on river valley, upland. The runoff class is negligible. The parent material consists of sandy eolian deposits. This soil is somewhat excessively drained. The slowest permeability is rapid. It has a low available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Sandy - Veg. Zone 3 range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

ThB Thurman Loamy Fine Sand, 3 To 5 Percent Slopes

Thurman soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a moderately sloping terrace on river valley, upland. The runoff class is negligible. The parent material consists of sandy eolian deposits. This soil is somewhat excessively drained. The slowest permeability is rapid. It has a low available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Sandy - Veg. Zone 3 range site. This soil is in the irrigated land capability class 4e. It is in the nonirrigated land capability classification 4e.

Ty Tryon Loam

Almeria soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on river valley. The runoff class is negligible. The parent material consists of sandy alluvium. This soil is very poorly drained. The slowest permeability is moderate. It has a moderate available water capacity and a low shrink swell potential. This soil is occasionally flooded and is not ponded. The top of the seasonal high water table is at 0 inches. The soil contains a maximum amount of 5 percent calcium carbonate. This soil contains a very slightly saline horizon. This soil is in the Wet Land - Veg. Zone 3 range site. It is in the nonirrigated land capability classification 5w.

UsC Uly Silt Loam, 5 To 11 Percent Slopes

Uly soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a moderately sloping to strongly sloping upland. The runoff class is medium. The parent material consists of fine-silty calcareous loess. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 15 percent calcium carbonate. This soil is in the Silty - Veg. Zone 3 range site. This soil is in the irrigated land capability class 4e. It is in the nonirrigated land capability classification 4e.

NONTECHNICAL SOIL DESCRIPTIONS--Continued
Howard County, Nebraska

UsD Uly Silt Loam, 11 To 15 Percent Slopes

Uly soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a strongly sloping to moderately steep upland. The runoff class is medium. The parent material consists of fine-silty calcareous loess. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 15 percent calcium carbonate. This soil is in the Silty - Veg. Zone 3 range site. It is in the nonirrigated land capability classification 6e.

VaC Valentine Fine Sand, Rolling

Valentine soil makes up 100 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a moderately sloping to moderately steep upland. The runoff class is very low. The parent material consists of eolian sands. This soil is excessively drained. The slowest permeability is rapid. It has a low available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Sands - Veg. Zone 3 range site. It is in the nonirrigated land capability classification 6e.

VTD Valentine And Thurman Soils, 0 To 17 Percent Slopes

Valentine soil makes up 65 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a nearly level to moderately steep upland. The runoff class is very low. The parent material consists of eolian sands. This soil is excessively drained. The slowest permeability is rapid. It has a low available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Sands - Veg. Zone 3 range site. It is in the nonirrigated land capability classification 6e.

Thurman soil makes up 35 percent of the map unit. This map unit is in the Central Nebraska Loess Hills Major Land Resource Area. This soil occurs on a moderately sloping to moderately steep upland. The runoff class is very low. The parent material consists of sandy eolian deposits. This soil is somewhat excessively drained. The slowest permeability is rapid. It has a low available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Sands - Veg. Zone 3 range site. It is in the nonirrigated land capability classification 6e.

**2Hb—Hobbs silt loam,
Occasionally Flooded**

Map Unit Composition

Hobbs: 100 percent

Component Descriptions

Hobbs

MLRA: 71 - Central Nebraska Loess Hills

Landform: Drainageway on upland

Parent material: Stratified silty alluvium

Slope: 0 to 1 percent

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: High (About 12.0 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: Occasional

Depth to seasonal water saturation: More than 6 feet

Runoff class: Negligible

Ecological site: Silty Overflow - Veg. Zone 3

Land capability (irrigated): 2w

Land capability (nonirrigated): 2w

Typical Profile:

H1—0 to 5 inches; silt loam

H2—5 to 60 inches; silt loam

**2ThA—Thurman loamy fine sand,
loamy Substratum, 0 to 3 percent
slopes**

Map Unit Composition

Thurman: 100 percent

Component Descriptions

Thurman

MLRA: 71 - Central Nebraska Loess Hills

Landform: Terrace on river valley, hillslope on upland

Parent material: Sandy eolian deposits

Slope: 0 to 3 percent

Drainage class: Somewhat excessively drained

Slowest permeability: Rapid (About 5.95 in/hr)

Available water capacity: Moderate (About 6.0 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Negligible

Ecological site: Sandy - Veg. Zone 3

Land capability (irrigated): 3e

Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 36 inches; loamy fine sand

H2—36 to 60 inches; fine sand

2To—Tryon Soils, Drained

Map Unit Composition

Almeria: 100 percent

Component Descriptions

Almeria

MLRA: 71 - Central Nebraska Loess Hills

Landform: Flood plain

Parent material: Sandy alluvium

Slope: 0 to 2 percent

Drainage class: Poorly drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: Low (About 5.9 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: Occasional

Depth to seasonal water saturation: About 0 to 18 inches

Runoff class: Negligible

Ecological site: Wet Subirrigated - Veg. Zone 3

Land capability (nonirrigated): 5w

Typical Profile:

H1—0 to 5 inches; loam

H2—5 to 60 inches; stratified sand to fine sandy loam

AED—Arents, Earthen Dam

Map Unit Composition

Arents, Earthen Dam: 100 percent

Component Descriptions

Arents, Earthen Dam

MLRA: 71 - Central Nebraska Loess Hills

Depth to seasonal water saturation: More than 6 feet
Land capability (nonirrigated): 8

B—Blown-Out Land

Map Unit Composition

Psamments: 100 percent

Component Descriptions

Psamments

MLRA: 71 - Central Nebraska Loess Hills

Landform: Upland

Parent material: Eolian sands

Slope: 5 to 15 percent

Drainage class: Excessively drained

Slowest permeability: Rapid (About 5.95 in/hr)

Available water capacity: Low (About 4.1 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Very low

Land capability (nonirrigated): 7e

Typical Profile:

H1—0 to 60 inches; fine sand

Boa—Boel loamy fine sand

Map Unit Composition

Boel: 100 percent

Component Descriptions

Boel

MLRA: 71 - Central Nebraska Loess Hills

Landform: Flood plain on river valley

Parent material: Sandy alluvium

Slope: 0 to 2 percent

Drainage class: Somewhat poorly drained

Slowest permeability: Rapid (About 5.95 in/hr)

Available water capacity: Low (About 5.1 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: Rare

Depth to seasonal water saturation: About 18 to 36 inches

Runoff class: Negligible

Ecological site: Subirrigated - Veg. Zone 3

Land capability (irrigated): 4w

Land capability (nonirrigated): 4w

Typical Profile:

H1—0 to 11 inches; loamy fine sand

H2—11 to 80 inches; fine sand

Minor Components

Almeria

Slope: 0 to 2 percent

Drainage class: Very poorly drained

Ecological site: Wet Land - Veg. Zone 3

Bob—Boel fine sandy loam

Map Unit Composition

Boel: 100 percent

Component Descriptions

Boel

MLRA: 71 - Central Nebraska Loess Hills

Landform: Flood plain on river valley

Parent material: Sandy alluvium

Slope: 0 to 2 percent

Drainage class: Somewhat poorly drained

Slowest permeability: Moderately rapid (About 2.00 in/hr)

Available water capacity: Low (About 5.7 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: About 18 to 36 inches

Runoff class: Negligible

Ecological site: Subirrigated - Veg. Zone 3

Land capability (irrigated): 3w

Land capability (nonirrigated): 3w

Typical Profile:

H1—0 to 11 inches; fine sandy loam

H2—11 to 80 inches; fine sand

Minor Components

Almeria

Slope: 0 to 2 percent

Drainage class: Very poorly drained

Ecological site: Wet Land - Veg. Zone 3

Boc—Boel loam

Map Unit Composition

Boel: 100 percent

Component Descriptions

Boel

MLRA: 71 - Central Nebraska Loess Hills

Landform: Flood plain on river valley

Parent material: Sandy alluvium

Slope: 0 to 2 percent

Drainage class: Somewhat poorly drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: Moderate (About 6.3 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: About 18 to 36 inches

Runoff class: Negligible

Ecological site: Subirrigated - Veg. Zone 3

Land capability (irrigated): 3w

Land capability (nonirrigated): 3w

Typical Profile:

H1—0 to 11 inches; loam

H2—11 to 80 inches; fine sand

Minor Components**Almeria**

Slope: 0 to 2 percent

Drainage class: Very poorly drained

Ecological site: Wet Land - Veg. Zone 3

CbC—Coly silt loam, 5 to 11 percent slopes**Map Unit Composition**

Coly: 100 percent

Component Descriptions

Coly

MLRA: 71 - Central Nebraska Loess Hills

Landform: Interfluvium on upland

Parent material: Fine-silty calcareous loess

Slope: 5 to 11 percent

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: High (About 11.9 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Ponding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Medium

Ecological site: Limy Upland - Veg. Zone 3

Land capability (irrigated): 4e

Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 5 inches; silt loam

H2—5 to 60 inches; silt loam

CbD—Coly silt loam, 11 to 31 percent slopes**Map Unit Composition**

Coly: 100 percent

Component Descriptions

Coly

MLRA: 71 - Central Nebraska Loess Hills

Landform: Upland

Parent material: Fine-silty calcareous loess

Slope: 11 to 31 percent

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: High (About 11.9 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Ponding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: High

Ecological site: Limy Upland - Veg. Zone 3

Land capability (nonirrigated): 6e

Typical Profile:

H1—0 to 5 inches; silt loam

H2—5 to 60 inches; silt loam

CUD—Coly-Uly complex, 15 to 31 percent slopes

Map Unit Composition

Coly: 60 percent
Uly: 40 percent

Component Descriptions

Coly

MLRA: 71 - Central Nebraska Loess Hills

Landform: Upland

Parent material: Fine-silty calcareous loess

Slope: 15 to 31 percent

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: High (About 11.9 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Ponding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: High

Ecological site: Limy Upland - Veg. Zone 3

Land capability (nonirrigated): 6e

Typical Profile:

H1—0 to 5 inches; silt loam

H2—5 to 60 inches; silt loam

Uly

MLRA: 71 - Central Nebraska Loess Hills

Parent material: Fine-silty calcareous loess

Slope: 15 to 31 percent

Drainage class: Well drained

Slowest permeability: Moderately slow (About 0.20 in/hr)

Available water capacity: High (About 11.0 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: High

Ecological site: Silty - Veg. Zone 3

Land capability (nonirrigated): 6e

Typical Profile:

H1—0 to 8 inches; silt loam

H2—8 to 13 inches; silty clay loam

H3—13 to 60 inches; silt loam

Da—Darr fine sandy loam

Map Unit Composition

Darr: 100 percent

Component Descriptions

Darr

MLRA: 71 - Central Nebraska Loess Hills

Landform: Flood plain on river valley

Parent material: Loamy alluvium over sandy and gravelly alluvium

Slope: 0 to 1 percent

Drainage class: Somewhat excessively drained

Slowest permeability: Moderately rapid (About 2.00 in/hr)

Available water capacity: Low (About 5.1 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Negligible

Ecological site: Sandy Lowland - Veg. Zone 3

Land capability (irrigated): 2e

Land capability (nonirrigated): 2e

Typical Profile:

H1—0 to 12 inches; fine sandy loam

H2—12 to 26 inches; sandy loam

H3—26 to 60 inches; coarse sand

Db—Darr silt loam

Map Unit Composition

Darr: 100 percent

Component Descriptions

Darr

MLRA: 71 - Central Nebraska Loess Hills

Landform: -- error in exists on --

Parent material: Loamy alluvium over sandy and gravelly alluvium

Slope: 0 to 1 percent

Drainage class: Somewhat excessively drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: Low (About 5.8 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Negligible

Ecological site: Sandy Lowland - Veg. Zone 3

Land capability (irrigated): 2s
Land capability (nonirrigated): 2s

Typical Profile:

H1—0 to 12 inches; silt loam
 H2—12 to 26 inches; sandy loam
 H3—26 to 60 inches; coarse sand

De—Detroit silt loam, 0 to 1 percent slopes

Map Unit Composition

Detroit: 100 percent

Component Descriptions

Detroit

MLRA: 71 - Central Nebraska Loess Hills

Landform: Flood plain on river valley

Parent material: Silty alluvium over loess

Slope: 0 to 1 percent

Drainage class: Moderately well drained

Slowest permeability: Slow (About 0.06 in/hr)

Available water capacity: High (About 9.6 inches)

Shrink-swell potential: High (About 7.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Negligible

Ecological site: Silty Lowland - Veg. Zone 3

Land capability (irrigated): 1

Land capability (nonirrigated): 2c

Typical Profile:

H1—0 to 5 inches; silt loam
 H2—5 to 52 inches; silty clay
 H3—52 to 60 inches; silt loam

Ea—Elsmere loamy fine sand

Map Unit Composition

Elsmere: 100 percent

Component Descriptions

Elsmere

MLRA: 71 - Central Nebraska Loess Hills

Landform: Terrace on river valley

Parent material: Sandy alluvium and/or eolian sands

Slope: 0 to 2 percent

Drainage class: Somewhat poorly drained

Slowest permeability: Rapid (About 5.95 in/hr)

Available water capacity: Low (About 4.3 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: About 18 to 36 inches

Runoff class: Negligible

Ecological site: Subirrigated - Veg. Zone 3

Land capability (irrigated): 3w

Land capability (nonirrigated): 3w

Typical Profile:

H1—0 to 11 inches; loamy fine sand
 H2—11 to 17 inches; loamy sand
 H3—17 to 60 inches; sand

Minor Components

Almeria, Drained

Slope: 0 to 2 percent

Drainage class: Very poorly drained

Ecological site: Wet Land - Veg. Zone 3

Gg—Gibbon silt loam

Map Unit Composition

Gibbon: 100 percent

Gibbon: 100 percent

Component Descriptions

Gibbon

MLRA: 71 - Central Nebraska Loess Hills

Parent material: Stratified calcareous silty alluvium

Slope: 0 to 2 percent

Drainage class: Somewhat poorly drained

Slowest permeability: Moderate (About 0.57 in/hr)

Available water capacity: High (About 11.6 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: About 18 to 36 inches

Runoff class: Negligible

Ecological site: Subirrigated - Veg. Zone 3

Land capability (irrigated): 2w

Land capability (nonirrigated): 2w

Typical Profile:

- H1—0 to 8 inches; silt loam
- H2—8 to 43 inches; silt loam
- H3—43 to 60 inches; stratified very fine sandy loam to silt loam

*Gibbon**MLRA:* 71 - Central Nebraska Loess Hills*Landform:* Flood plain on river valley*Parent material:* Stratified calcareous silty alluvium*Slope:* 0 to 2 percent*Drainage class:* Somewhat poorly drained*Slowest permeability:* Moderate (About 0.57 in/hr)*Available water capacity:* High (About 11.6 inches)*Shrink-swell potential:* Moderate (About 4.5 LEP)*Flooding hazard:* None*Depth to seasonal water saturation:* About 18 to 36 inches*Runoff class:* Negligible*Ecological site:* Subirrigated - Veg. Zone 3*Land capability (irrigated):* 2w*Land capability (nonirrigated):* 2w*Typical Profile:*

- H1—0 to 8 inches; silt loam
- H2—8 to 43 inches; silt loam
- H3—43 to 60 inches; stratified very fine sandy loam to silt loam

Minor Components**Almeria***Slope:* 0 to 2 percent*Drainage class:* Very poorly drained*Ecological site:* Wet Land - Veg. Zone 3**Gk—Grigston silt loam**

Map Unit Composition

Grigston: 100 percent

Component Descriptions

Grigston

MLRA: 71 - Central Nebraska Loess Hills*Landform:* Flood plain, river valley*Parent material:* Calcareous alluvium*Slope:* 0 to 1 percent*Drainage class:* Well drained*Slowest permeability:* Moderately slow (About 0.20 in/hr)*Available water capacity:* High (About 11.7 inches)*Shrink-swell potential:* Low (About 1.5 LEP)*Flooding hazard:* None*Depth to seasonal water saturation:* More than 6 feet*Runoff class:* Negligible*Ecological site:* Silty Lowland - Veg. Zone 3*Land capability (irrigated):* 1*Land capability (nonirrigated):* 1*Typical Profile:*

- H1—0 to 10 inches; silt loam
- H2—10 to 19 inches; silty clay loam
- H3—19 to 60 inches; silt loam

Minor Components**Almeria***Slope:* 0 to 2 percent*Drainage class:* Very poorly drained*Ecological site:* Wet Land - Veg. Zone 3**GP—Gravel Pit**

Map Unit Composition

Pits: 100 percent

Component Descriptions

Pits

MLRA: 71 - Central Nebraska Loess Hills*Slope:* 0 to 30 percent*Drainage class:* Excessively drained*Slowest permeability:* Rapid (About 6.00 in/hr)*Available water capacity:* Low (About 3.5 inches)*Shrink-swell potential:* Low (About 1.5 LEP)*Flooding hazard:* None*Depth to seasonal water saturation:* More than 6 feet*Land capability (nonirrigated):* 8s**GsC3—Geary Soils, 7 to 11 percent slopes, Severely Eroded**

Map Unit Composition

Nuckolls Variant: 100 percent

Component Descriptions

Nuckolls Variant

MLRA: 71 - Central Nebraska Loess Hills*Landform:* Upland*Parent material:* Loess*Slope:* 7 to 11 percent*Drainage class:* Well drained*Slowest permeability:* Moderately slow (About 0.20 in/hr)*Available water capacity:* High (About 11.4 inches)*Shrink-swell potential:* Moderate (About 4.5 LEP)*Flooding hazard:* None*Depth to seasonal water saturation:* More than 6 feet*Runoff class:* High*Ecological site:* Silty - Veg. Zone 3*Land capability (irrigated):* 4e*Land capability (nonirrigated):* 4e**Typical Profile:**

H1—0 to 5 inches; silty clay loam

H2—5 to 17 inches; silty clay loam

H3—17 to 60 inches; silty clay loam

GsD3—Geary Soils, 11 to 15 percent slopes, Severely Eroded**Map Unit Composition**

Nuckolls Variant: 100 percent

Component Descriptions

Nuckolls Variant

MLRA: 71 - Central Nebraska Loess Hills*Landform:* Upland*Parent material:* Loess*Slope:* 11 to 15 percent*Drainage class:* Well drained*Slowest permeability:* Moderately slow (About 0.20 in/hr)*Available water capacity:* High (About 11.4 inches)*Shrink-swell potential:* Moderate (About 4.5 LEP)*Flooding hazard:* None*Depth to seasonal water saturation:* More than 6 feet*Runoff class:* High*Ecological site:* Silty - Veg. Zone 3*Land capability (nonirrigated):* 6e**Typical Profile:**

H1—0 to 5 inches; silty clay loam

H2—5 to 17 inches; silty clay loam

H3—17 to 60 inches; silty clay loam

Ha—Hall silt loam, 0 to 1 percent slopes**Map Unit Composition**

Hall: 100 percent

Component Descriptions

Hall

MLRA: 71 - Central Nebraska Loess Hills*Landform:* Terrace on river valley*Parent material:* Loess*Slope:* 0 to 1 percent*Drainage class:* Well drained*Slowest permeability:* Moderately slow (About 0.20 in/hr)*Available water capacity:* High (About 11.3 inches)*Shrink-swell potential:* Moderate (About 4.5 LEP)*Flooding hazard:* None*Depth to seasonal water saturation:* More than 6 feet*Runoff class:* Negligible*Ecological site:* Silty Lowland - Veg. Zone 3*Land capability (irrigated):* 1*Land capability (nonirrigated):* 2c**Typical Profile:**

H1—0 to 6 inches; silt loam

H2—6 to 29 inches; silty clay loam

H3—29 to 45 inches; silt loam

H4—45 to 60 inches; stratified fine sandy loam to loam

Hb—Hobbs silt loam, 0 to 1 percent slopes**Map Unit Composition**

Hord: 100 percent

Component Descriptions

Hord*MLRA:* 71 - Central Nebraska Loess Hills*Landform:* Terrace on river valley*Parent material:* Colluvium and/or loess*Slope:* 0 to 1 percent*Drainage class:* Well drained*Slowest permeability:* Moderate (About 0.60 in/hr)*Available water capacity:* High (About 11.9 inches)*Shrink-swell potential:* Low (About 1.5 LEP)*Flooding hazard:* None*Depth to seasonal water saturation:* More than 6 feet*Runoff class:* Negligible*Ecological site:* Silty Lowland - Veg. Zone 3*Land capability (irrigated):* 1*Land capability (nonirrigated):* 2c*Typical Profile:*

H1—0 to 5 inches; silt loam

H2—5 to 25 inches; silt loam

H3—25 to 60 inches; silt loam

HbA—Hobbs silt loam, 1 to 3 percent slopes**Map Unit Composition**

Hord: 100 percent

Component Descriptions**Hord***MLRA:* 71 - Central Nebraska Loess Hills*Landform:* Terrace on river valley*Parent material:* Colluvium and/or loess*Slope:* 1 to 3 percent*Drainage class:* Well drained*Slowest permeability:* Moderate (About 0.60 in/hr)*Available water capacity:* High (About 11.9 inches)*Shrink-swell potential:* Low (About 1.5 LEP)*Flooding hazard:* None*Depth to seasonal water saturation:* More than 6 feet*Runoff class:* Low*Ecological site:* Silty Lowland - Veg. Zone 3*Land capability (irrigated):* 2e*Land capability (nonirrigated):* 2e*Typical Profile:*

H1—0 to 5 inches; silt loam

H2—5 to 25 inches; silt loam

H3—25 to 60 inches; silt loam

HbB—Hobbs silt loam, 3 to 5 percent slopes**Map Unit Composition**

Hord: 100 percent

Component Descriptions**Hord***MLRA:* 71 - Central Nebraska Loess Hills*Parent material:* Colluvium and/or loess*Slope:* 3 to 5 percent*Drainage class:* Well drained*Slowest permeability:* Moderate (About 0.60 in/hr)*Available water capacity:* High (About 11.9 inches)*Shrink-swell potential:* Low (About 1.5 LEP)*Flooding hazard:* None*Depth to seasonal water saturation:* More than 6 feet*Runoff class:* Low*Ecological site:* Silty - Veg. Zone 3*Land capability (irrigated):* 3e*Land capability (nonirrigated):* 3e*Typical Profile:*

H1—0 to 5 inches; silt loam

H2—5 to 25 inches; silt loam

H3—25 to 60 inches; silt loam

Hd—Hord silt loam, 0 to 1 percent slopes**Map Unit Composition**

Hord: 100 percent

Component Descriptions**Hord***MLRA:* 71 - Central Nebraska Loess Hills*Landform:* Terrace on river valley*Parent material:* Colluvium and/or loess*Slope:* 0 to 1 percent*Drainage class:* Well drained

Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Very high (About 12.2 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Negligible
Ecological site: Silty Lowland - Veg. Zone 3
Land capability (irrigated): 1
Land capability (nonirrigated): 2c

Typical Profile:

H1—0 to 20 inches; silt loam
H2—20 to 39 inches; silty clay loam
H3—39 to 60 inches; silt loam

Hg—Holder silt loam, 0 to 1 percent slopes

Map Unit Composition

Holdrege: 100 percent

Component Descriptions

Holdrege
MLRA: 71 - Central Nebraska Loess Hills
Landform: Upland
Parent material: Loess
Slope: 0 to 1 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: Very high (About 12.1 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Silty - Veg. Zone 3
Land capability (irrigated): 1
Land capability (nonirrigated): 2c

Typical Profile:

H1—0 to 13 inches; silt loam
H2—13 to 39 inches; silty clay loam
H3—39 to 60 inches; silt loam

HgA—Holder silt loam, 1 to 3 percent slopes

Map Unit Composition

Holdrege: 100 percent

Component Descriptions

Holdrege
MLRA: 71 - Central Nebraska Loess Hills
Landform: Upland
Parent material: Loess
Slope: 1 to 3 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: Very high (About 12.1 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Silty - Veg. Zone 3
Land capability (irrigated): 2e
Land capability (nonirrigated): 2e

Typical Profile:

H1—0 to 13 inches; silt loam
H2—13 to 39 inches; silty clay loam
H3—39 to 60 inches; silt loam

HgB2—Holder silt loam, 3 to 5 percent slopes, Eroded

Map Unit Composition

Holdrege: 100 percent

Component Descriptions

Holdrege
MLRA: 71 - Central Nebraska Loess Hills
Landform: Upland
Parent material: Loess
Slope: 3 to 5 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: Very high (About 12.1 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Medium

Ecological site: Silty - Veg. Zone 3

Land capability (irrigated): 3e

Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 9 inches; silt loam

H2—9 to 35 inches; silty clay loam

H3—35 to 60 inches; silt loam

HgC—Holder silt loam, 5 to 11 percent slopes

Map Unit Composition

Holdrege: 100 percent

Component Descriptions

Holdrege

MLRA: 71 - Central Nebraska Loess Hills

Landform: Upland

Parent material: Loess

Slope: 5 to 11 percent

Drainage class: Well drained

Slowest permeability: Moderately slow (About 0.20 in/hr)

Available water capacity: Very high (About 12.1 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: High

Ecological site: Silty - Veg. Zone 3

Land capability (irrigated): 4e

Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 11 inches; silt loam

H2—11 to 37 inches; silty clay loam

H3—37 to 60 inches; silt loam

HpC2—Holder silty clay loam, 5 to 11 percent slopes, Eroded

Map Unit Composition

Holdrege: 100 percent

Component Descriptions

Holdrege

MLRA: 71 - Central Nebraska Loess Hills

Landform: Upland

Parent material: Loess

Slope: 5 to 11 percent

Drainage class: Well drained

Slowest permeability: Moderately slow (About 0.20 in/hr)

Available water capacity: High (About 12.0 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: High

Ecological site: Silty - Veg. Zone 3

Land capability (irrigated): 4e

Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 7 inches; silty clay loam

H2—7 to 32 inches; silty clay loam

H3—32 to 60 inches; silt loam

HpC3—Holder silty clay loam, 5 to 11 percent slopes, Severely Eroded

Map Unit Composition

Holdrege Variant: 100 percent

Component Descriptions

Holdrege Variant

MLRA: 71 - Central Nebraska Loess Hills

Landform: Upland

Parent material: Loess

Slope: 5 to 11 percent

Drainage class: Well drained

Slowest permeability: Moderately slow (About 0.20 in/hr)

Available water capacity: Very high (About 12.0 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: High

Ecological site: Silty - Veg. Zone 3

Land capability (irrigated): 4e

Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 5 inches; silty clay loam

H2—5 to 26 inches; silty clay loam

H3—26 to 60 inches; silt loam

Hs—Hastings silt loam, 0 to 1 percent slopes

Map Unit Composition

Harney: 100 percent

Component Descriptions

Harney

MLRA: 71 - Central Nebraska Loess Hills

Landform: Upland

Parent material: Loess

Slope: 0 to 1 percent

Drainage class: Well drained

Slowest permeability: Slow (About 0.06 in/hr)

Available water capacity: High (About 10.7 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Low

Ecological site: Silty - Veg. Zone 3

Land capability (irrigated): 1

Land capability (nonirrigated): 2c

Typical Profile:

H1—0 to 10 inches; silt loam

H2—10 to 44 inches; silty clay loam

H3—44 to 60 inches; silt loam

la—Inavale loam

Map Unit Composition

Inavale: 100 percent

Component Descriptions

Inavale

MLRA: 71 - Central Nebraska Loess Hills

Landform: River valley on flood plain

Parent material: Sandy alluvium

Slope: 0 to 3 percent

Drainage class: Excessively drained

Slowest permeability: Moderately rapid (About 2.00 in/hr)

Available water capacity: Low (About 5.4 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Negligible

Ecological site: Sandy Lowland - Veg. Zone 3

Land capability (irrigated): 2s

Land capability (nonirrigated): 2s

Typical Profile:

H1—0 to 8 inches; loam

H2—8 to 13 inches; loamy fine sand

H3—13 to 60 inches;

If—Inavale fine sand

Map Unit Composition

Inavale: 100 percent

Component Descriptions

Inavale

MLRA: 71 - Central Nebraska Loess Hills

Landform: Flood plain on river valley

Parent material: Sandy alluvium

Slope: 0 to 5 percent

Drainage class: Excessively drained

Slowest permeability: Rapid (About 5.95 in/hr)

Available water capacity: Low (About 4.8 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Negligible

Ecological site: Sandy Lowland - Veg. Zone 3

Land capability (irrigated): 4e

Land capability (nonirrigated): 6e

Typical Profile:

H1—0 to 8 inches; fine sand
 H2—8 to 13 inches; loamy fine sand
 H3—13 to 60 inches; fine sand

Ig—Inavale loamy fine sand

Map Unit Composition

Inavale: 100 percent

Component Descriptions

Inavale

MLRA: 71 - Central Nebraska Loess Hills

Landform: Flood plain on river valley

Parent material: Sandy alluvium

Slope: 0 to 5 percent

Drainage class: Excessively drained

Slowest permeability: Rapid (About 5.95 in/hr)

Available water capacity: Low (About 5.0 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Negligible

Ecological site: Sandy Lowland - Veg. Zone 3

Land capability (irrigated): 3e

Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 8 inches; loamy fine sand
 H2—8 to 13 inches; loamy fine sand
 H3—13 to 60 inches; fine sand

In—Inavale fine sandy loam

Map Unit Composition

Inavale: 100 percent

Component Descriptions

Inavale

MLRA: 71 - Central Nebraska Loess Hills

Landform: Flood plain on river valley

Parent material: Sandy alluvium

Slope: 0 to 3 percent

Drainage class: Excessively drained

Slowest permeability: Moderately rapid (About 2.00 in/hr)

Available water capacity: Low (About 5.4 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Negligible

Ecological site: Sandy Lowland - Veg. Zone 3

Land capability (irrigated): 3e

Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 8 inches; fine sandy loam
 H2—8 to 13 inches; loamy fine sand
 H3—13 to 60 inches; fine sand

INT—Aquolls

Map Unit Composition

Aquolls: 100 percent

Component Descriptions

Aquolls

MLRA: 71 - Central Nebraska Loess Hills

Landform: Depression

Parent material: Alluvium

Slope: 0 to 1 percent

Drainage class: Very poorly drained

Flooding hazard: None

Ponding hazard: Occasional

Depth to seasonal water saturation: About 0 to 0 inches

Runoff class: Negligible

Land capability (nonirrigated): 5w

Typical Profile:

H1—0 to 72 inches; variable

General Considerations: This map unit was formerly labeled as an Intermittent Water spot symbol. These depressional areas contain soils that are occasionally ponded for long duration.

Ks—Kenesaw silt loam, 0 to 1 percent slopes

Map Unit Composition

Kenesaw: 100 percent

Component Descriptions

Kenesaw

MLRA: 71 - Central Nebraska Loess Hills*Landform:* Upland*Parent material:* Calcareous loess*Slope:* 0 to 1 percent*Drainage class:* Well drained*Slowest permeability:* Moderate (About 0.60 in/hr)*Available water capacity:* High (About 12.0 inches)*Shrink-swell potential:* Low (About 1.5 LEP)*Flooding hazard:* None*Depth to seasonal water saturation:* More than 6 feet*Runoff class:* Negligible*Ecological site:* Silty - Veg. Zone 3*Land capability (irrigated):* 1*Land capability (nonirrigated):* 2c**Typical Profile:**

H1—0 to 8 inches; silt loam

H2—8 to 46 inches; silt loam

H3—46 to 60 inches; silt loam

KsB—Kenesaw silt loam, 1 to 5 percent slopes**Map Unit Composition**

Kenesaw: 100 percent

Component Descriptions

Kenesaw

MLRA: 71 - Central Nebraska Loess Hills*Landform:* Upland*Parent material:* Calcareous loess*Slope:* 1 to 3 percent*Drainage class:* Well drained*Slowest permeability:* Moderate (About 0.60 in/hr)*Available water capacity:* High (About 12.0 inches)*Shrink-swell potential:* Low (About 1.5 LEP)*Flooding hazard:* None*Depth to seasonal water saturation:* More than 6 feet*Runoff class:* Low*Ecological site:* Silty - Veg. Zone 3*Land capability (irrigated):* 2e*Land capability (nonirrigated):* 2e**Typical Profile:**

H1—0 to 8 inches; silt loam

H2—8 to 46 inches; silt loam

H3—46 to 60 inches; silt loam

KsC—Kenesaw silt loam, 5 to 11 percent slopes**Map Unit Composition**

Kenesaw: 100 percent

Component Descriptions

Kenesaw

MLRA: 71 - Central Nebraska Loess Hills*Landform:* Upland*Parent material:* Calcareous loess*Slope:* 5 to 11 percent*Drainage class:* Well drained*Slowest permeability:* Moderate (About 0.60 in/hr)*Available water capacity:* High (About 12.0 inches)*Shrink-swell potential:* Low (About 1.5 LEP)*Flooding hazard:* None*Depth to seasonal water saturation:* More than 6 feet*Runoff class:* Medium*Ecological site:* Silty - Veg. Zone 3*Land capability (irrigated):* 4e*Land capability (nonirrigated):* 4e**Typical Profile:**

H1—0 to 8 inches; silt loam

H2—8 to 46 inches; silt loam

H3—46 to 60 inches; silt loam

KSz—Kenesaw-Slickspots complex**Map Unit Composition**

Kenesaw: 70 percent

Cozad: 30 percent

Component Descriptions

Kenesaw

MLRA: 71 - Central Nebraska Loess Hills

Landform: Terrace on river valley
Parent material: Calcareous loess
Slope: 0 to 1 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: High (About 12.0 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Negligible
Ecological site: Silty - Veg. Zone 3
Land capability (irrigated): 1
Land capability (nonirrigated): 2c

Typical Profile:

H1—0 to 8 inches; silt loam
 H2—8 to 46 inches; silt loam
 H3—46 to 60 inches; silt loam

Cozad
MLRA: 71 - Central Nebraska Loess Hills
Landform: Terrace on river valley
Parent material: Coarse-silty alluvium
Slope: 0 to 1 percent
Drainage class: Moderately well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Very high (About 12.5 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: About 36 to 72 inches
Runoff class: Negligible
Ecological site: Silty Lowland - Veg. Zone 3
Land capability (irrigated): 3s
Land capability (nonirrigated): 4s

Typical Profile:

H1—0 to 5 inches; silt loam
 H2—5 to 14 inches; silt loam
 H3—14 to 60 inches; silt loam

L—Loretto complex, 0 to 5 percent slopes

Map Unit Composition

Loretto: 100 percent

Component Descriptions

Loretto
MLRA: 71 - Central Nebraska Loess Hills
Landform: Terrace on river valley
Parent material: Loamy eolian deposits
Slope: 0 to 2 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.57 in/hr)
Available water capacity: High (About 10.7 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Negligible
Ecological site: Silty - Veg. Zone 3
Land capability (irrigated): 2e
Land capability (nonirrigated): 2e

Typical Profile:

H1—0 to 18 inches; fine sandy loam
 H2—18 to 38 inches; silt loam
 H3—38 to 60 inches; silt loam

La—Lamo silt loam

Map Unit Composition

Lamo: 100 percent

Component Descriptions

Lamo
MLRA: 71 - Central Nebraska Loess Hills
Landform: Terrace on river valley
Parent material: Loamy alluvium
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: High (About 11.9 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: Occasional
Depth to seasonal water saturation: About 12 to 36 inches
Runoff class: Negligible
Ecological site: Subirrigated - Veg. Zone 3
Land capability (irrigated): 2w
Land capability (nonirrigated): 2w

Typical Profile:

H1—0 to 13 inches; silt loam
H2—13 to 60 inches; silty clay loam

Land capability (irrigated): 4e
Land capability (nonirrigated): 4e

LB—Libory-Boelus fine sands

Map Unit Composition

Libory: 70 percent
Boelus: 30 percent

Component Descriptions

Libory

MLRA: 71 - Central Nebraska Loess Hills
Landform: Terrace on river valley
Parent material: Eolian sands over loess
Slope: 0 to 3 percent
Drainage class: Moderately well drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: High (About 10.2 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: About 18 to 36 inches
Runoff class: Negligible
Ecological site: Sandy Lowland - Veg. Zone 3
Land capability (irrigated): 3e
Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 10 inches; fine sand
H2—10 to 15 inches; loamy sand
H3—15 to 60 inches; silty clay loam

Boelus

MLRA: 71 - Central Nebraska Loess Hills
Landform: Terrace on river valley
Parent material: Eolian sands over silty eolian deposits
Slope: 0 to 2 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: High (About 9.8 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Negligible
Ecological site: Sandy - Veg. Zone 3

Typical Profile:

H1—0 to 10 inches; fine sand
H2—10 to 19 inches; loamy fine sand
H3—19 to 37 inches; silt loam
H4—37 to 60 inches; silt loam

LC—Libory-Boelus loamy fine sands

Map Unit Composition

Libory: 75 percent
Boelus: 25 percent

Component Descriptions

Libory

MLRA: 71 - Central Nebraska Loess Hills
Landform: Terrace on river valley
Parent material: Eolian sands over loess
Slope: 0 to 3 percent
Drainage class: Moderately well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: High (About 10.3 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: About 18 to 36 inches
Ecological site: Sandy Lowland - Veg. Zone 3
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 10 inches; loamy fine sand
H2—10 to 15 inches; loamy sand
H3—15 to 60 inches; silty clay loam

Boelus

MLRA: 71 - Central Nebraska Loess Hills
Landform: Terrace on river valley
Parent material: Eolian sands over silty eolian deposits
Slope: 0 to 2 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: High (About 10.0 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Ecological site: Sandy - Veg. Zone 3
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 10 inches; loamy fine sand
H2—10 to 19 inches; loamy fine sand
H3—19 to 37 inches; silt loam
H4—37 to 60 inches; silt loam

M—Marsh

Map Unit Composition

Fluvaquents: 100 percent

Component Descriptions

Fluvaquents

MLRA: 71 - Central Nebraska Loess Hills

Landform: Flood plain

Parent material: Silty alluvium

Slope: 0 to 1 percent

Drainage class: Very poorly drained

Slowest permeability: Moderately slow (About 0.20 in/hr)

Available water capacity: High (About 11.8 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: Frequent

Depth to seasonal water saturation: About 0 to 0 inches

Runoff class: Negligible

Land capability (nonirrigated): 8w

Typical Profile:

H1—0 to 60 inches; silt loam

M-W—Miscellaneous Water, Sewage Lagoon

Map Unit Composition

Miscellaneous Water: 100 percent

Component Descriptions

Miscellaneous Water

MLRA: 71 - Central Nebraska Loess Hills

Depth to seasonal water saturation: More than 6 feet

NsD3—Nuckolls Soils, 15 to 31 percent slopes, Severely Eroded

Map Unit Composition

Nuckolls Variant: 100 percent

Component Descriptions

Nuckolls Variant

MLRA: 71 - Central Nebraska Loess Hills

Landform: Upland

Parent material: Loess

Slope: 15 to 31 percent

Drainage class: Well drained

Slowest permeability: Moderately slow (About 0.20 in/hr)

Available water capacity: High (About 11.5 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: High

Ecological site: Silty - Veg. Zone 3

Land capability (nonirrigated): 6e

Typical Profile:

H1—0 to 7 inches; silt loam

H2—7 to 39 inches; silty clay loam

H3—39 to 60 inches; silt loam

Oa—Ovina loamy fine sand

Map Unit Composition

Ovina: 100 percent

Component Descriptions

Ovina

MLRA: 71 - Central Nebraska Loess Hills

Landform: Terrace on river valley

Parent material: Loamy eolian deposits over loamy alluvium

Slope: 0 to 3 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Moderate (About 8.9 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: About 12 to 36 inches
Runoff class: Very low
Ecological site: Subirrigated - Veg. Zone 3
Land capability (irrigated): 3w
Land capability (nonirrigated): 3w

Typical Profile:

H1—0 to 11 inches; loamy fine sand
 H2—11 to 30 inches; fine sandy loam
 H3—30 to 40 inches; loam
 H4—40 to 80 inches; fine sandy loam

ObB—Ortello loamy fine sand, 1 to 5 percent slopes

Map Unit Composition

Ortello: 100 percent

Component Descriptions

Ortello
MLRA: 71 - Central Nebraska Loess Hills
Landform: Terrace on river valley
Parent material: Sandy eolian deposits
Slope: 1 to 3 percent
Drainage class: Well drained
Slowest permeability: Moderately rapid (About 2.00 in/hr)
Available water capacity: Moderate (About 8.6 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Very low
Ecological site: Sandy - Veg. Zone 3
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 7 inches; loamy fine sand
 H2—7 to 60 inches; fine sandy loam

Oe—Ord loam

Map Unit Composition

Ord: 100 percent

Component Descriptions

Ord
MLRA: 71 - Central Nebraska Loess Hills
Landform: River valley on terrace
Parent material: Stratified sandy alluvium
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Low (About 5.9 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: About 18 to 36 inches
Runoff class: Very low
Ecological site: Subirrigated - Veg. Zone 3
Land capability (irrigated): 2w
Land capability (nonirrigated): 2w

Typical Profile:

H1—0 to 14 inches; loam
 H2—14 to 26 inches; sandy loam
 H3—26 to 60 inches; stratified sand to loamy fine sand

Minor Components

Almeria

Slope: 0 to 2 percent
Drainage class: Very poorly drained
Ecological site: Wet Land - Veg. Zone 3

Of—Ord fine sandy loam

Map Unit Composition

Ord: 100 percent

Component Descriptions

Ord
MLRA: 71 - Central Nebraska Loess Hills
Parent material: Stratified sandy alluvium
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained

Slowest permeability: Moderately rapid (About 2.00 in/hr)

Available water capacity: Low (About 5.7 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: About 18 to 36 inches

Runoff class: Negligible

Ecological site: Subirrigated - Veg. Zone 3

Land capability (irrigated): 2w

Land capability (nonirrigated): 2w

Typical Profile:

H1—0 to 14 inches; fine sandy loam

H2—14 to 26 inches; sandy loam

H3—26 to 60 inches; stratified sand to loamy fine sand

Minor Components

Almeria

Slope: 0 to 2 percent

Drainage class: Very poorly drained

Ecological site: Wet Land - Veg. Zone 3

Ok—O'Neill loam, 0 to 3 percent slopes

Map Unit Composition

O'Neill: 100 percent

Component Descriptions

O'Neill

MLRA: 71 - Central Nebraska Loess Hills

Landform: River valley, -- error in exists on --

Parent material: Coarse-loamy alluvium over sandy and gravelly alluvium

Slope: 0 to 3 percent

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: Low (About 4.2 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Very low

Ecological site: Sandy - Veg. Zone 3

Land capability (irrigated): 2s

Land capability (nonirrigated): 2c

Typical Profile:

H1—0 to 14 inches; loam

H2—14 to 20 inches; fine sandy loam

H3—20 to 60 inches; gravelly sand

OrA—Ortello fine sandy loam, 0 to 1 percent slopes

Map Unit Composition

Ortello: 100 percent

Component Descriptions

Ortello

MLRA: 71 - Central Nebraska Loess Hills

Landform: Upland, terrace on river valley

Parent material: Sandy eolian deposits

Slope: 0 to 1 percent

Drainage class: Well drained

Slowest permeability: Moderately rapid (About 2.00 in/hr)

Available water capacity: Moderate (About 6.6 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Negligible

Ecological site: Sandy - Veg. Zone 3

Land capability (irrigated): 2e

Land capability (nonirrigated): 2e

Typical Profile:

H1—0 to 15 inches; fine sandy loam

H2—15 to 25 inches; fine sandy loam

H3—25 to 60 inches; loamy fine sand

Ot—Ortello loam, 0 to 1 percent slopes

Map Unit Composition

Ortello: 100 percent

Component Descriptions

Ortello

MLRA: 71 - Central Nebraska Loess Hills

Landform: Upland, terrace on river valley

Parent material: Sandy eolian deposits

Slope: 0 to 1 percent

Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Moderate (About 6.9 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Negligible
Ecological site: Sandy - Veg. Zone 3
Land capability (irrigated): 1
Land capability (nonirrigated): 1

Typical Profile:

H1—0 to 7 inches; loam
 H2—7 to 25 inches; fine sandy loam
 H3—25 to 60 inches; loamy fine sand

OtB—Ortello loam, 1 to 5 percent slopes

Map Unit Composition

Ortello: 100 percent

Component Descriptions

Ortello
MLRA: 71 - Central Nebraska Loess Hills
Landform: Upland, terrace on river valley
Parent material: Sandy eolian deposits
Slope: 2 to 5 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Moderate (About 6.9 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Very low
Ecological site: Sandy - Veg. Zone 3
Land capability (irrigated): 3e
Land capability (nonirrigated): 2e

Typical Profile:

H1—0 to 7 inches; loam
 H2—7 to 25 inches; fine sandy loam
 H3—25 to 60 inches; loamy fine sand

OxD—Ortello-Coly complex, 15 to 31 percent slopes

Map Unit Composition

Ortello: 60 percent
 Coly: 40 percent

Component Descriptions

Ortello
MLRA: 71 - Central Nebraska Loess Hills
Landform: Upland
Parent material: Sandy eolian deposits
Slope: 15 to 30 percent
Drainage class: Well drained
Slowest permeability: Moderately rapid (About 2.00 in/hr)
Available water capacity: Moderate (About 8.9 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Sandy - Veg. Zone 3
Land capability (nonirrigated): 6e

Typical Profile:

H1—0 to 7 inches; fine sandy loam
 H2—7 to 60 inches; fine sandy loam

Coly

MLRA: 71 - Central Nebraska Loess Hills
Landform: Upland
Parent material: Fine-silty calcareous loess
Slope: 15 to 31 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: High (About 11.9 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: High
Ecological site: Limy Upland - Veg. Zone 3
Land capability (nonirrigated): 6e

Typical Profile:

H1—0 to 5 inches; silt loam
 H2—5 to 60 inches; silt loam

RB—Rough Broken Land Loess

Map Unit Composition

Coly: 100 percent

Component Descriptions

Coly

MLRA: 71 - Central Nebraska Loess Hills

Landform: Upland

Parent material: Fine-silty calcareous loess

Slope: 31 to 60 percent

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: High (About 11.9 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: High

Ecological site: Thin Loess - Veg. Zone 3

Land capability (nonirrigated): 7e

Typical Profile:

H1—0 to 3 inches; silt loam

H2—3 to 60 inches; silt loam

Depth to seasonal water saturation: About 24 to 48 inches

Runoff class: Negligible

Ecological site: Silty Overflow - Veg. Zone 3

Land capability (irrigated): 2w

Land capability (nonirrigated): 2w

Typical Profile:

H1—0 to 7 inches; silt loam

H2—7 to 26 inches; silty clay loam

H3—26 to 60 inches; silt loam

Minor Components**Perched Wt****Ponded Soils****Sm—Simeon loamy sand, 0 to 3 percent slopes**

Map Unit Composition

Simeon: 100 percent

Component Descriptions

Simeon

MLRA: 71 - Central Nebraska Loess Hills

Landform: Terrace on river valley

Parent material: Sandy and gravelly alluvium

Slope: 0 to 3 percent

Drainage class: Excessively drained

Slowest permeability: Rapid (About 5.95 in/hr)

Available water capacity: Low (About 5.0 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Negligible

Ecological site: Shallow To Gravel - Veg. Zone 3

Land capability (irrigated): 4s

Land capability (nonirrigated): 6s

Typical Profile:

H1—0 to 8 inches; loamy sand

H2—8 to 80 inches; sand

Ru—Rusco silt loam

Map Unit Composition

Rusco: 100 percent

Component Descriptions

Rusco

MLRA: 71 - Central Nebraska Loess Hills

Landform: Terrace on river valley

Parent material: Loamy eolian deposits over silty alluvium

Slope: 0 to 1 percent

Drainage class: Moderately well drained

Slowest permeability: Moderately slow (About 0.20 in/hr)

Available water capacity: High (About 11.8 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: Occasional

SS—Silver Creek-Slickspots complex

Map Unit Composition

Silver Creek: 65 percent
Slickspots: 35 percent

Component Descriptions

Silver Creek

MLRA: 71 - Central Nebraska Loess Hills

Landform: Terrace on river valley

Parent material: Alluvium

Slope: 0 to 2 percent

Drainage class: Somewhat poorly drained

Slowest permeability: Slow (About 0.06 in/hr)

Available water capacity: High (About 10.7 inches)

Shrink-swell potential: High (About 7.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: About 18 to 36 inches

Runoff class: Negligible

Ecological site: Subirrigated - Veg. Zone 3

Land capability (irrigated): 3w

Land capability (nonirrigated): 3w

Typical Profile:

H1—0 to 8 inches; silt loam

H2—8 to 28 inches; silty clay loam

H3—28 to 60 inches; silt loam

Slickspots

MLRA: 71 - Central Nebraska Loess Hills

Slope: 0 to 2 percent

Drainage class: Moderately well drained

Slowest permeability: Very slow (About 0.00 in/hr)

Available water capacity: Moderate (About 8.4 inches)

Shrink-swell potential: High (About 7.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: About 36 to 72 inches

Runoff class: Low

Ecological site: Saline Lowland - Veg. Zone 3

Land capability (irrigated): 4s

Land capability (nonirrigated): 4s

Typical Profile:

H1—0 to 5 inches; silt loam

H2—5 to 30 inches; silty clay loam

H3—30 to 60 inches; silty clay loam

Sy—silty Alluvial Land**Map Unit Composition**

Hobbs: 100 percent

Component Descriptions

Hobbs

MLRA: 71 - Central Nebraska Loess Hills

Landform: Drainageway on upland

Parent material: Stratified silty alluvium

Slope: 0 to 2 percent

Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: Very high (About 12.0 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: Frequent

Depth to seasonal water saturation: More than 6 feet

Runoff class: Negligible

Ecological site: Silty Overflow - Veg. Zone 3

Land capability (nonirrigated): 6w

Typical Profile:

H1—0 to 20 inches; silt loam

H2—20 to 60 inches; stratified silt loam

TfB—Thurman fine sand, 0 to 5 percent slopes**Map Unit Composition**

Thurman: 100 percent

Component Descriptions

Thurman

MLRA: 71 - Central Nebraska Loess Hills

Landform: Terrace on river valley

Parent material: Sandy eolian deposits

Slope: 3 to 5 percent

Drainage class: Somewhat excessively drained

Slowest permeability: Rapid (About 5.95 in/hr)

Available water capacity: Low (About 4.9 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Negligible

Ecological site: Sandy - Veg. Zone 3

Land capability (irrigated): 4e

Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 10 inches; fine sand
 H2—10 to 32 inches; loamy fine sand
 H3—32 to 80 inches; fine sand

Minor Components**Almeria, Drained**

Slope: 0 to 2 percent
Drainage class: Very poorly drained
Ecological site: Wet Land - Veg. Zone 3

ThA—Thurman loamy fine sand, 0 to 3 percent slopes

Map Unit Composition

Thurman: 100 percent

Component Descriptions

Thurman

MLRA: 71 - Central Nebraska Loess Hills
Landform: Terrace on river valley, upland
Parent material: Sandy eolian deposits
Slope: 0 to 3 percent
Drainage class: Somewhat excessively drained
Slowest permeability: Rapid (About 5.95 in/hr)
Available water capacity: Low (About 4.7 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Negligible
Ecological site: Sandy - Veg. Zone 3
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 10 inches; loamy fine sand
 H2—10 to 14 inches; loamy fine sand
 H3—14 to 60 inches; fine sand

ThB—Thurman loamy fine sand, 3 to 5 percent slopes

Map Unit Composition

Thurman: 100 percent

Component Descriptions

Thurman

MLRA: 71 - Central Nebraska Loess Hills
Landform: Terrace on river valley, upland
Parent material: Sandy eolian deposits
Slope: 3 to 5 percent
Drainage class: Somewhat excessively drained
Slowest permeability: Rapid (About 5.95 in/hr)
Available water capacity: Low (About 4.7 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Negligible
Ecological site: Sandy - Veg. Zone 3
Land capability (irrigated): 4e
Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 10 inches; loamy fine sand
 H2—10 to 14 inches; loamy fine sand
 H3—14 to 60 inches; fine sand

Ty—Tryon loam

Map Unit Composition

Almeria: 100 percent

Component Descriptions

Almeria

MLRA: 71 - Central Nebraska Loess Hills
Landform: Flood plain on river valley
Parent material: Sandy alluvium
Slope: 0 to 2 percent
Drainage class: Very poorly drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Low (About 5.9 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: Occasional
Depth to seasonal water saturation: About 0 to 0 inches
Runoff class: Negligible
Ecological site: Wet Land - Veg. Zone 3
Land capability (nonirrigated): 5w

Typical Profile:

H1—0 to 5 inches; loam
 H2—5 to 60 inches; stratified sand to fine sandy loam

UsC—Uly silt loam, 5 to 11 percent slopes

Map Unit Composition

Uly: 100 percent

Component Descriptions

Uly

MLRA: 71 - Central Nebraska Loess Hills*Landform:* Upland*Parent material:* Fine-silty calcareous loess*Slope:* 5 to 11 percent*Drainage class:* Well drained*Slowest permeability:* Moderate (About 0.60 in/hr)*Available water capacity:* High (About 11.2 inches)*Shrink-swell potential:* Low (About 1.5 LEP)*Flooding hazard:* None*Depth to seasonal water saturation:* More than 6 feet*Runoff class:* Medium*Ecological site:* Silty - Veg. Zone 3*Land capability (irrigated):* 4e*Land capability (nonirrigated):* 4e*Typical Profile:*

H1—0 to 8 inches; silt loam

H2—8 to 19 inches; silt loam

H3—19 to 60 inches; silt loam

UsD—Uly silt loam, 11 to 15 percent slopes

Map Unit Composition

Uly: 100 percent

Component Descriptions

Uly

MLRA: 71 - Central Nebraska Loess Hills*Landform:* Upland*Parent material:* Fine-silty calcareous loess*Slope:* 11 to 15 percent*Drainage class:* Well drained*Slowest permeability:* Moderate (About 0.60 in/hr)*Available water capacity:* High (About 11.2 inches)*Shrink-swell potential:* Low (About 1.5 LEP)*Flooding hazard:* None*Depth to seasonal water saturation:* More than 6 feet*Runoff class:* Medium*Ecological site:* Silty - Veg. Zone 3*Land capability (nonirrigated):* 6e*Typical Profile:*

H1—0 to 8 inches; silt loam

H2—8 to 19 inches; silt loam

H3—19 to 60 inches; silt loam

VaC—Valentine fine sand, Rolling

Map Unit Composition

Valentine: 100 percent

Component Descriptions

Valentine

MLRA: 71 - Central Nebraska Loess Hills*Landform:* Upland*Parent material:* Eolian sands*Slope:* 5 to 17 percent*Drainage class:* Excessively drained*Slowest permeability:* Rapid (About 5.95 in/hr)*Available water capacity:* Low (About 3.9 inches)*Shrink-swell potential:* Low (About 1.5 LEP)*Flooding hazard:* None*Depth to seasonal water saturation:* More than 6 feet*Runoff class:* Very low*Ecological site:* Sands - Veg. Zone 3*Land capability (nonirrigated):* 6e*Typical Profile:*

H1—0 to 4 inches; fine sand

H2—4 to 11 inches; loamy sand

H3—11 to 60 inches; fine sand

VTD—Valentine And Thurman Soils, 0 to 17 percent slopes

Map Unit Composition

Valentine: 65 percent

Thurman: 35 percent

Component Descriptions

Valentine

MLRA: 71 - Central Nebraska Loess Hills*Landform:* Upland*Parent material:* Eolian sands*Slope:* 0 to 17 percent*Drainage class:* Excessively drained*Slowest permeability:* Rapid (About 5.95 in/hr)*Available water capacity:* Low (About 3.9 inches)*Shrink-swell potential:* Low (About 1.5 LEP)*Flooding hazard:* None*Depth to seasonal water saturation:* More than 6 feet*Runoff class:* Very low*Ecological site:* Sands - Veg. Zone 3*Land capability (nonirrigated):* 6e*Typical Profile:*

H1—0 to 4 inches; fine sand

H2—4 to 11 inches; loamy sand

H3—11 to 60 inches; fine sand

Thurman

MLRA: 71 - Central Nebraska Loess Hills*Landform:* Upland*Parent material:* Sandy eolian deposits*Slope:* 6 to 17 percent*Drainage class:* Somewhat excessively drained*Slowest permeability:* Rapid (About 5.95 in/hr)*Available water capacity:* Low (About 4.7 inches)*Shrink-swell potential:* Low (About 1.5 LEP)*Flooding hazard:* None*Depth to seasonal water saturation:* More than 6 feet*Runoff class:* Very low*Ecological site:* Sands - Veg. Zone 3*Land capability (nonirrigated):* 6e*Typical Profile:*

H1—0 to 10 inches; loamy fine sand

H2—10 to 14 inches; loamy fine sand

H3—14 to 60 inches; fine sand

W—Water**Map Unit Composition**

Water: 100 percent

Component Descriptions

Water

MLRA: 71 - Central Nebraska Loess Hills*Depth to seasonal water saturation:* More than 6 feet

General Considerations: Water includes streams, lakes, ponds, and estuaries. These areas are covered with water in most years, at least during the period that is warm enough for plants to grow. Many areas are covered throughout the year.

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive land-forming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes. In the capability system, soils are generally grouped at three levels: capability class, subclass, and unit.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

(Class 1) soils have slight limitations that restrict their use.

(Class 2) soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

(Class 3) soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

(Class 4) soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

(Class 5) soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

(Class 6) soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

(Class 7) soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

(Class 8) soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, e, w, s, or c, to the class numeral, for example, 2e. The letter e shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; w shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); s shows that the soil is limited mainly because it is shallow, droughty, or stony; and c, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by w, s, or c because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

Capability units are soil groups within a subclass. The soils in a capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, 2e-4 and 3e-6. These units are not given in all soil surveys.

The capability classification of map units in this survey area is given in the section "Detailed Soil Map Units" and in the Land Capability and Component Yields table.

Crop Yield Estimates

The average yields per acre that can be expected of the principal crops under a high level of management are shown in "Land Capability and Component Yields" table. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of map units in the survey area also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations also are considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, animal waste manure, and green manure crops; and harvesting that ensures the smallest possible loss.

For yields of irrigated crops, it is assumed that the irrigation system is adapted to the soils and to the crops grown, that good-quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in this table, are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service (NRCS) or the Cooperative Extension Service (CES) can provide information about the management and productivity of the soils for those crops.

LAND CAPABILITY AND YIELDS PER ACRE OF CROPS--Continued

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Howard County, Nebraska

(Yields in the "N" columns are for nonirrigated soils; those in the "I" columns are for irrigated soils. Yields are those that can be expected under a high level of nonirrigated and irrigated management by component. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Map symbol and soil name	Land Capability		Corn		Grain sorghum		Soybeans		Winter wheat	
	N	I	N	I	N	I	N	I	N	I
	Bu		Bu		Bu		Bu		Bu	
2Hb: HOBBS-----	2w	2w	48.00	130.00	55.00	115.00	---	---	---	---
2ThA: THURMAN-----	3e	3e	38.00	100.00	39.00	95.00	---	---	32.00	---
2To: ALMERIA-----	5w	---	---	---	---	---	---	---	---	---
AED: ARENTS, EARTHEN DAM-----	8	---	---	---	---	---	---	---	---	---
B: PSAMMENTS-----	7e	---	---	---	---	---	---	---	---	---
Boa: BOEL-----	4w	4w	35.00	85.00	37.00	85.00	---	---	28.00	---
Bob: BOEL-----	3w	3w	38.00	90.00	40.00	88.00	---	---	31.00	---
Boc: BOEL-----	3w	3w	42.00	95.00	44.00	92.00	---	---	32.00	---
CbC: COLY-----	4e	4e	23.00	---	31.00	---	---	---	28.00	---
CbD: COLY-----	6e	---	---	---	---	---	---	---	---	---
CUD: COLY-----	6e	---	---	---	---	---	---	---	---	---
ULY-----	6e	---	---	---	---	---	---	---	---	---
Da: DARR-----	2e	2e	32.00	110.00	36.00	105.00	---	---	31.00	---
Db: DARR-----	2s	2s	34.00	115.00	38.00	110.00	---	---	35.00	---
De: DETROIT-----	2c	1	42.00	135.00	47.00	115.00	---	---	42.00	---
Ea: ELSMERE-----	3w	3w	37.00	90.00	39.00	88.00	---	---	28.00	---
Gg: GIBBON-----	2w	2w	55.00	110.00	56.00	100.00	---	---	35.00	---
GIBBON-----	2w	2w	55.00	110.00	56.00	100.00	---	---	35.00	---
Gk: GRIGSTON-----	1	1	45.00	150.00	51.00	125.00	---	---	42.00	---
GP: PITS-----	8s	---	---	---	---	---	---	---	---	---
GsC3: NUCKOLLS VARIANT	4e	4e	22.00	---	28.00	---	---	---	25.00	---
GsD3: NUCKOLLS VARIANT	6e	---	---	---	---	---	---	---	---	---
Ha: HALL-----	2c	1	43.00	145.00	48.00	120.00	---	---	42.00	---
Hb: HORD-----	2c	1	47.00	150.00	53.00	125.00	---	---	42.00	---
HbA: HORD-----	2e	2e	45.00	135.00	51.00	115.00	---	---	42.00	---
HbB: HORD-----	3e	3e	38.00	110.00	46.00	105.00	---	---	39.00	---
Hd: HORD-----	2c	1	45.00	150.00	51.00	125.00	---	---	42.00	---

LAND CAPABILITY AND YIELDS PER ACRE OF CROPS--Continued
Howard County, Nebraska

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(Yields in the "N" columns are for nonirrigated soils; those in the "I" columns are for irrigated soils. Yields are those that can be expected under a high level of nonirrigated and irrigated management by component. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Map symbol and soil name	Land Capability		Corn		Grain sorghum		Soybeans		Winter wheat	
	N	I	N	I	N	I	N	I	N	I
	Bu		Bu		Bu		Bu		Bu	
Hg: HOLDREGE-----	2c	1	40.00	140.00	48.00	115.00	---	---	42.00	---
HgA: HOLDREGE-----	2e	2e	38.00	130.00	46.00	110.00	---	---	39.00	---
HgB2: HOLDREGE-----	3e	3e	34.00	105.00	43.00	100.00	---	---	36.00	---
HgC: HOLDREGE-----	4e	4e	32.00	---	40.00	---	---	---	36.00	---
HpC2: HOLDREGE-----	4e	4e	28.00	---	37.00	---	---	---	34.00	---
HpC3: HOLDREGE VARIANT	4e	4e	26.00	---	35.00	---	---	---	31.00	---
Hs: HARNEY-----	2c	1	38.00	140.00	46.00	115.00	---	---	42.00	---
Ia: INAVALE-----	2s	2s	24.00	90.00	28.00	88.00	---	---	27.00	---
If: INAVALE-----	6e	4e	---	---	---	---	---	---	---	---
Ig: INAVALE-----	4e	3e	20.00	80.00	23.00	80.00	---	---	22.00	---
In: INAVALE-----	3e	3e	22.00	87.00	25.00	85.00	---	---	25.00	---
INT: AQUOLLS-----	5w	---	---	---	---	---	---	---	---	---
Ks: KENESAW-----	2c	1	38.00	130.00	45.00	115.00	---	---	38.00	---
KsB: KENESAW-----	2e	2e	34.00	110.00	43.00	105.00	---	---	35.00	---
KsC: KENESAW-----	4e	4e	28.00	---	38.00	---	---	---	32.00	---
KSz: KENESAW-----	2c	1	25.00	100.00	31.00	95.00	---	---	29.00	---
COZAD-----	4s	3s	25.00	100.00	31.00	95.00	---	---	29.00	---
L: LORETTO-----	2e	2e	45.00	125.00	48.00	115.00	---	---	39.00	---
La: LAMO-----	2w	2w	56.00	110.00	54.00	95.00	---	---	34.00	---
LB: LIBORY-----	4e	3e	36.00	100.00	38.00	95.00	---	---	27.00	---
BOELUS-----	4e	4e	36.00	100.00	38.00	95.00	---	---	27.00	---
LC: LIBORY-----	3e	3e	44.00	120.00	46.00	110.00	---	---	36.00	---
BOELUS-----	3e	3e	44.00	120.00	46.00	110.00	---	---	36.00	---
M: FLUVAQUENTS----	8w	---	---	---	---	---	---	---	---	---
M-W: MISCELLANEOUS WATER-----	---	---	---	---	---	---	---	---	---	---
NsD3: NUCKOLLS VARIANT	6e	---	---	---	---	---	---	---	---	---
Oa: OVINA-----	3w	3w	40.00	95.00	42.00	92.00	---	---	28.00	---

LAND CAPABILITY AND YIELDS PER ACRE OF CROPS--Continued
Howard County, Nebraska

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(Yields in the "N" columns are for nonirrigated soils; those in the "I" columns are for irrigated soils. Yields are those that can be expected under a high level of nonirrigated and irrigated management by component. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Map symbol and soil name	Land Capability		Corn		Grain sorghum		Soybeans		Winter wheat	
	N	I	N	I	N	I	N	I	N	I
			Bu		Bu				Bu	
ObB: ORTELO-----	3e	3e	33.00	100.00	36.00	95.00	---	---	32.00	---
Oe: ORD-----	2w	2w	45.00	105.00	50.00	100.00	---	---	35.00	---
Of: ORD-----	2w	2w	43.00	100.00	48.00	95.00	---	---	34.00	---
Ok: O'NEILL-----	2c	2s	28.00	105.00	31.00	100.00	---	---	32.00	---
OrA: ORTELO-----	2e	2e	35.00	110.00	38.00	105.00	---	---	35.00	---
Ot: ORTELO-----	1	1	37.00	115.00	40.00	110.00	---	---	38.00	---
OtB: ORTELO-----	2e	3e	35.00	105.00	38.00	100.00	---	---	35.00	---
OxD: ORTELO-----	6e	---	---	---	---	---	---	---	---	---
COLY-----	6e	---	---	---	---	---	---	---	---	---
RB: COLY-----	7e	---	---	---	---	---	---	---	---	---
Ru: RUSCO-----	2w	2w	38.00	140.00	45.00	110.00	---	---	35.00	---
Sm: SIMEON-----	6s	4s	---	---	---	---	---	---	---	---
SS: SILVER CREEK----	3w	3w	29.00	100.00	33.00	95.00	---	---	31.00	---
SLICKSPOTS-----	4s	4s	29.00	100.00	33.00	95.00	---	---	31.00	---
Sy: HOBBS-----	6w	---	---	---	---	---	---	---	---	---
TfB: THURMAN-----	4e	4e	---	---	---	---	---	---	---	---
ThA: THURMAN-----	3e	3e	32.00	90.00	35.00	88.00	---	---	31.00	---
ThB: THURMAN-----	4e	4e	27.00	85.00	30.00	82.00	---	---	28.00	---
Ty: ALMERIA-----	5w	---	---	---	---	---	---	---	---	---
UsC: ULY-----	4e	4e	30.00	---	40.00	---	---	---	35.00	---
UsD: ULY-----	6e	---	---	---	---	---	---	---	---	---
VaC: VALENTINE-----	6e	---	---	---	---	---	---	---	---	---
VTD: VALENTINE-----	6e	---	---	---	---	---	---	---	---	---
THURMAN-----	6e	---	---	---	---	---	---	---	---	---
W: WATER-----	---	---	---	---	---	---	---	---	---	---

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed in the following table. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in the "Acres and Proportionate Extent of Soils" table. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described in other tables in this document."

Map symbol	Mapunit name	Farmland Classification
2Hb	Hobbs silt loam, occasionally flooded	All areas are prime farmland
Da	Darr fine sandy loam	All areas are prime farmland
Db	Darr silt loam	All areas are prime farmland
De	Detroit silt loam, 0 to 1 percent slopes	All areas are prime farmland
Gk	Grigston silt loam	All areas are prime farmland
Ha	Hall silt loam, 0 to 1 percent slopes	All areas are prime farmland
Hb	Hobbs silt loam, 0 to 1 percent slopes	All areas are prime farmland
HbA	Hobbs silt loam, 1 to 3 percent slopes	All areas are prime farmland
HbB	Hobbs silt loam, 3 to 5 percent slopes	All areas are prime farmland
Hd	Hord silt loam, 0 to 1 percent slopes	All areas are prime farmland
Hg	Holder silt loam, 0 to 1 percent slopes	All areas are prime farmland
HgA	Holder silt loam, 1 to 3 percent slopes	All areas are prime farmland
HgB2	Holder silt loam, 3 to 5 percent slopes, eroded	All areas are prime farmland
Hs	Hastings silt loam, 0 to 1 percent slopes	All areas are prime farmland
Ks	Kenesaw silt loam, 0 to 1 percent slopes	All areas are prime farmland
KsB	Kenesaw silt loam, 1 to 5 percent slopes	All areas are prime farmland
L	Loretto complex, 0 to 5 percent slopes	All areas are prime farmland
OrA	Ortello fine sandy loam, 0 to 1 percent slopes	All areas are prime farmland
Ot	Ortello loam, 0 to 1 percent slopes	All areas are prime farmland
OtB	Ortello loam, 1 to 5 percent slopes	All areas are prime farmland
Ru	Rusco silt loam	All areas are prime farmland
Gg	Gibbon silt loam	Prime farmland if drained
La	Lamo silt loam	Prime farmland if drained
Oe	Ord loam	Prime farmland if drained
Of	Ord fine sandy loam	Prime farmland if drained

The "Soil Rating for Plant Growth, modified 1998" (SRPG) is a relative rating of the capacity of a soil to produce a specific plant under a defined management system. The index is determined from yield data on a few benchmark soils and is used to calculate yields, the net returns from crops, land assessment values, and taxes and to perform risk analysis when land management decisions are made. Specific information on plants and yields can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Map symbol	Soil name	Crop Index
2Hb	Hobbs Silt Loam, Occasionally Flooded-----	63
2ThA	Thurman Loamy Fine Sand, Loamy Substratum, 0 To 3 Percent Slopes-----	39
2To	Tryon Soils, Drained-----	37
AED	Arents, Earthen Dam-----	0
B	Blown-Out Land-----	25
Boa	Boel Loamy Fine Sand-----	25
Bob	Boel Fine Sandy Loam-----	31
Boc	Boel Loam-----	36
CUD	Coly-Uly Complex, 15 To 31 Percent Slopes-----	25
CbC	Coly Silt Loam, 5 To 11 Percent Slopes-----	50
CbD	Coly Silt Loam, 11 To 31 Percent Slopes-----	29
Da	Darr Fine Sandy Loam-----	38
Db	Darr Silt Loam-----	45
De	Detroit Silt Loam, 0 To 1 Percent Slopes-----	64
Ea	Elsmere Loamy Fine Sand-----	29
GP	Gravel Pit-----	18
Gg	Gibbon Silt Loam-----	54
Gk	Grigston Silt Loam-----	60
GsC3	Geary Soils, 7 To 11 Percent Slopes, Severely Eroded-----	59
GsD3	Geary Soils, 11 To 15 Percent Slopes, Severely Eroded-----	54
Ha	Hall Silt Loam, 0 To 1 Percent Slopes-----	72
Hb	Hobbs Silt Loam, 0 To 1 Percent Slopes-----	74
HbA	Hobbs Silt Loam, 1 To 3 Percent Slopes-----	73
HbB	Hobbs Silt Loam, 3 To 5 Percent Slopes-----	72
Hd	Hord Silt Loam, 0 To 1 Percent Slopes-----	74
Hg	Holder Silt Loam, 0 To 1 Percent Slopes-----	73
HgA	Holder Silt Loam, 1 To 3 Percent Slopes-----	72
HgB2	Holder Silt Loam, 3 To 5 Percent Slopes, Eroded-----	70
HgC	Holder Silt Loam, 5 To 11 Percent Slopes-----	65
HpC2	Holder Silty Clay Loam, 5 To 11 Percent Slopes, Eroded-----	65
HpC3	Holder Silty Clay Loam, 5 To 11 Percent Slopes, Severely Eroded-----	64
Hs	Hastings Silt Loam, 0 To 1 Percent Slopes-----	68
INT	Aquolls-----	12
Ia	Inavale Loam-----	35
If	Inavale Fine Sand-----	30
Ig	Inavale Loamy Fine Sand-----	33
In	Inavale Fine Sandy Loam-----	35
KSz	Kenesaw-Slickspots Complex-----	63
Ks	Kenesaw Silt Loam, 0 To 1 Percent Slopes-----	70
KsB	Kenesaw Silt Loam, 1 To 5 Percent Slopes-----	69
KsC	Kenesaw Silt Loam, 5 To 11 Percent Slopes-----	63
L	Loretto Complex, 0 To 5 Percent Slopes-----	66
LB	Libory-Boelus Fine Sands-----	55
LC	Libory-Boelus Loamy Fine Sands-----	57
La	Lamo Silt Loam-----	50
M	Marsh-----	4
M-W	Miscellaneous Water, Sewage Lagoon-----	0
NsD3	Nuckolls Soils, 15 To 31 Percent Slopes, Severely Eroded-----	30
Oa	Ovina Loamy Fine Sand-----	54
ObB	Ortello Loamy Fine Sand, 1 To 5 Percent Slopes-----	56
Oe	Ord Loam-----	27
Of	Ord Fine Sandy Loam-----	27
Ok	O'Neill Loam, 0 To 3 Percent Slopes-----	39
OrA	Ortello Fine Sandy Loam, 0 To 1 Percent Slopes-----	49
Ot	Ortello Loam, 0 To 1 Percent Slopes-----	55
OtB	Ortello Loam, 1 To 5 Percent Slopes-----	53
OxD	Ortello-Coly Complex, 15 To 31 Percent Slopes-----	25
RB	Rough Broken Land Loess-----	3
Ru	Rusco Silt Loam-----	62
SS	Silver Creek-Slickspots Complex-----	43
Sm	Simeon Loamy Sand, 0 To 3 Percent Slopes-----	28
Sy	Silty Alluvial Land-----	52
TfB	Thurman Fine Sand, 0 To 5 Percent Slopes-----	32
ThA	Thurman Loamy Fine Sand, 0 To 3 Percent Slopes-----	32
ThB	Thurman Loamy Fine Sand, 3 To 5 Percent Slopes-----	31
Ty	Tryon Loam-----	25
UsC	Uly Silt Loam, 5 To 11 Percent Slopes-----	60
UsD	Uly Silt Loam, 11 To 15 Percent Slopes-----	54
VD	Valentine And Thurman Soils, 0 To 17 Percent Slopes-----	24
VaC	Valentine Fine Sand, Rolling-----	22
W	Water-----	0

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(Entries under "Erosion factors--T" apply to the entire profile. Entries under "K", "Kf", "Wind Erodibility Group" and "Wind Erodibility Index" apply only to the surface layer)

Map symbol and soil name	Percent	Irr Cap Class	Nonirr Cap Class	Prime Farmland	Hydro- logic Group	Range site name	Windbreak suitability group	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								K	Kf	T		
2Hb:HOBBS-----	100	2w-	2w	All areas are prime farmland	B	Silty Overflow - Veg. Zone 3		.32	.32	5	6	48
2ThA:THURMAN----	100	3e-	3e	Not prime farmland	A	Sandy - Veg. Zone 3		.17	.17	5	2	134
2To:ALMERIA-----	100	N/A	5w	Not prime farmland	D	Wet Subirrigated - Veg. Zone 3		.32	.32	5	8	0
AED:ARENTS, EARTHEN DAM-----	100	N/A	8	Not prime farmland		Unspecified		---	---	-	---	---
B:PSAMMENTS-----	100	N/A	7e	Not prime farmland	A	Unspecified		.15	.15	5	1	310
Boa:BOEL-----	100	4w-	4w	Not prime farmland	A	Subirrigated - Veg. Zone 3		.17	.17	5	2	134
Bob:BOEL-----	100	3w-	3w	Not prime farmland	A	Subirrigated - Veg. Zone 3		.20	.20	3	3	86
Boc:BOEL-----	100	3w-	3w	Not prime farmland	A	Subirrigated - Veg. Zone 3		.28	.28	3	4L	86
CUD:COLY-----	60	N/A	6e	Not prime farmland	B	Limy Upland - Veg. Zone 3		.43	.43	5	4L	86
CUD:ULY-----	40	N/A	6e	Not prime farmland	B	Silty - Veg. Zone 3		.32	.32	5	6	48
CbC:COLY-----	100	4e-	4e	Not prime farmland	B	Limy Upland - Veg. Zone 3		.43	.43	5	4L	86
CbD:COLY-----	100	N/A	6e	Not prime farmland	B	Limy Upland - Veg. Zone 3		.43	.43	5	4L	86
Da:DARR-----	100	2e-	2e	All areas are prime farmland	B	Sandy Lowland - Veg. Zone 3		.20	.20	4	3	86
Db:DARR-----	100	2s-	2s	All areas are prime farmland	B	Sandy Lowland - Veg. Zone 3		.32	.32	4	5	56
De:DETROIT-----	100	1-	2c	All areas are prime farmland	C	Silty Lowland - Veg. Zone 3		.37	.37	5	6	48
Ea:ELSMERE-----	100	3w-	3w	Not prime farmland	A	Subirrigated - Veg. Zone 3		.17	.17	5	2	134
GP:PITS-----	100	N/A	8s	Not prime farmland	A	Unspecified		.10	.17	2	8	0
Gg:GIBBON-----	100	2w-	2w	Prime farmland if drained	B	Subirrigated - Veg. Zone 3		.32	.32	5	4L	86
	100	2w-	2w	Prime farmland if drained	B	Subirrigated - Veg. Zone 3		.32	.32	5	4L	86

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Map symbol and soil name	Percent	Irr Cap Class	Nonirr Cap Class	Prime Farmland	Hydro- logic Group	Range site name	Windbreak suitability group	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								K	Kf	T		
Gk:GRIGSTON-----	100	1-	1	All areas are prime farmland	B	Silty Lowland - Veg. Zone 3		.32	.32	5	6	48
GsC3:NUCKOLLS VARIANT-----	100	4e-	4e	Not prime farmland	B	Silty - Veg. Zone 3		.37	.37	5	7	38
GsD3:NUCKOLLS VARIANT-----	100	N/A	6e	Not prime farmland	B	Silty - Veg. Zone 3		.37	.37	5	7	38
Ha:HALL-----	100	1-	2c	All areas are prime farmland	B	Silty Lowland - Veg. Zone 3		.32	.32	5	6	48
Hb:HORD-----	100	1-	2c	All areas are prime farmland	B	Silty Lowland - Veg. Zone 3		.32	.32	5	6	48
HbA:HORD-----	100	2e-	2e	All areas are prime farmland	B	Silty Lowland - Veg. Zone 3		.32	.32	5	6	48
HbB:HORD-----	100	3e-	3e	All areas are prime farmland	B	Silty - Veg. Zone 3		.32	.32	5	6	48
Hd:HORD-----	100	1-	2c	All areas are prime farmland	B	Silty Lowland - Veg. Zone 3		.32	.32	5	6	48
Hg:HOLDREGE-----	100	1-	2c	All areas are prime farmland	B	Silty - Veg. Zone 3		.32	.32	5	6	48
HgA:HOLDREGE----	100	2e-	2e	All areas are prime farmland	B	Silty - Veg. Zone 3		.32	.32	5	6	48
HgB2:HOLDREGE---	100	3e-	3e	All areas are prime farmland	B	Silty - Veg. Zone 3		.32	.32	5	6	48
HgC:HOLDREGE----	100	4e-	4e	Not prime farmland	B	Silty - Veg. Zone 3		.32	.32	5	6	48
HpC2:HOLDREGE---	100	4e-	4e	Not prime farmland	B	Silty - Veg. Zone 3		.32	.32	5	7	38
HpC3:HOLDREGE VARIANT-----	100	4e-	4e	Not prime farmland	B	Silty - Veg. Zone 3		.37	.37	5	7	38
Hs:HARNEY-----	100	1-	2c	All areas are prime farmland	B	Silty - Veg. Zone 3		.32	.32	5	6	48
INT:AQUOLLS-----	100	N/A	5w	Not prime farmland	C	Unspecified		---	---	-	---	0
Ia:INVALE-----	100	2s-	2s	Not prime farmland	A	Sandy Lowland - Veg. Zone 3		.32	.32	5	5	56
If:INVALE-----	100	4e-	6e	Not prime farmland	A	Sandy Lowland - Veg. Zone 3		.15	.15	5	1	220

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Map symbol and soil name	Percent	Irr Cap Class	Nonirr Cap Class	Prime Farmland	Hydro- logic Group	Range site name	Windbreak suitability group	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								K	Kf	T		
Ig:INVALE-----	100	3e-	4e	Not prime farmland	A	Sandy Lowland - Veg. Zone 3		.17	.17	5	2	134
In:INVALE-----	100	3e-	3e	Not prime farmland	A	Sandy Lowland - Veg. Zone 3		.24	.24	5	3	86
KSz:KENESAW-----	70	1-	2c	Not prime farmland	B	Silty - Veg. Zone 3		.32	.32	5	6	48
KSz:COZAD-----	30	3s-	4s	Not prime farmland	B	Silty Lowland - Veg. Zone 3		.32	.32	5	6	48
Ks:KENESAW-----	100	1-	2c	All areas are prime farmland	B	Silty - Veg. Zone 3		.32	.32	5	6	48
KsB:KENESAW-----	100	2e-	2e	All areas are prime farmland	B	Silty - Veg. Zone 3		.32	.32	5	6	48
KsC:KENESAW-----	100	4e-	4e	Not prime farmland	B	Silty - Veg. Zone 3		.32	.32	5	6	48
L:LORETTO-----	100	2e-	2e	All areas are prime farmland	B	Silty - Veg. Zone 3		.20	.20	5	3	86
LB:LIBORY-----	70	3e-	4e	Not prime farmland	A	Sandy Lowland - Veg. Zone 3		.15	.15	5	1	160
LB:BOELUS-----	30	4e-	4e	Not prime farmland	A	Sandy - Veg. Zone 3		.15	.15	5	1	180
LC:LIBORY-----	75	3e-	3e	Not prime farmland	A	Sandy Lowland - Veg. Zone 3		.17	.17	5	2	134
LC:BOELUS-----	25	3e-	3e	Not prime farmland	A	Sandy - Veg. Zone 3		.17	.17	5	2	134
La:LAMO-----	100	2w-	2w	Prime farmland if drained	C	Subirrigated - Veg. Zone 3		.32	.32	5	4L	86
M:FLUVAQUENTS---	100	N/A	8w	Not prime farmland	D	Unspecified		.28	.28	5	8	0
M- W:MISCELLANEOUS WATER-----	100	N/A	N/A	Not prime farmland		Unspecified		---	---	-	---	---
NsD3:NUCKOLLS VARIANT-----	100	N/A	6e	Not prime farmland	B	Silty - Veg. Zone 3		.37	.37	5	6	48
Oa:OVINA-----	100	3w-	3w	Not prime farmland	B	Subirrigated - Veg. Zone 3		.17	.17	5	2	134
ObB:ORTELLO-----	100	3e-	3e	Not prime farmland	B	Sandy - Veg. Zone 3		.17	.17	5	2	134

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Map symbol and soil name	Percent	Irr Cap Class	Nonirr Cap Class	Prime Farmland	Hydro- logic Group	Range site name	Windbreak suitability group	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								K	Kf	T		
Oe:ORD-----	100	2w-	2w	Prime farmland if drained	B	Subirrigated - Veg. Zone 3		.28	.28	4	4L	86
Of:ORD-----	100	2w-	2w	Prime farmland if drained	B	Subirrigated - Veg. Zone 3		.20	.20	4	3	86
Ok:O'NEILL-----	100	2s-	2c	Not prime farmland	B	Sandy - Veg. Zone 3		.28	.28	4	5	56
OrA:ORTELLO-----	100	2e-	2e	All areas are prime farmland	B	Sandy - Veg. Zone 3		.20	.20	5	3	86
Ot:ORTELLO-----	100	1-	1	All areas are prime farmland	B	Sandy - Veg. Zone 3		.28	.28	5	5	56
OtB:ORTELLO-----	100	3e-	2e	All areas are prime farmland	B	Sandy - Veg. Zone 3		.28	.28	5	5	56
OxD:ORTELLO-----	60	N/A	6e	Not prime farmland	B	Sandy - Veg. Zone 3		.20	.20	5	3	86
OxD:COLY-----	40	N/A	6e	Not prime farmland	B	Limy Upland - Veg. Zone 3		.43	.43	5	4L	86
RB:COLY-----	100	N/A	7e	Not prime farmland	B	Thin Loess - Veg. Zone 3		.43	.43	5	4L	86
Ru:RUSCO-----	100	2w-	2w	All areas are prime farmland	C	Silty Overflow - Veg. Zone 3		.32	.32	5	5	56
SS:SILVER CREEK--	65	3w-	3w	Not prime farmland	D	Subirrigated - Veg. Zone 3		.32	.32	2	6	48
SS:SLICKSPOTS---	35	4s-	4s	Not prime farmland	D	Saline Lowland - Veg. Zone 3		.32	.32	2	6	48
Sm:SIMEON-----	100	4s-	6s	Not prime farmland	A	Shallow To Gravel - Veg. Zone 3		.17	.17	5	2	134
Sy:HOBBS-----	100	N/A	6w	Not prime farmland	B	Silty Overflow - Veg. Zone 3		.32	.32	5	6	48
TfB:THURMAN-----	100	4e-	4e	Not prime farmland	A	Sandy - Veg. Zone 3		.15	.15	5	1	180
ThA:THURMAN-----	100	3e-	3e	Not prime farmland	A	Sandy - Veg. Zone 3		.17	.17	5	2	134
ThB:THURMAN-----	100	4e-	4e	Not prime farmland	A	Sandy - Veg. Zone 3		.17	.17	5	2	134
Ty:ALMERIA-----	100	N/A	5w	Not prime farmland	D	Wet Land - Veg. Zone 3		.32	.32	5	8	0

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Map symbol and soil name	Percent	Irr Cap Class	Nonirr Cap Class	Prime Farmland	Hydro- logic Group	Range site name	Windbreak suitability group	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								K	Kf	T		
UsC:ULY-----	100	4e-	4e	Not prime farmland	B	Silty - Veg. Zone 3		.32	.32	5	6	48
UsD:ULY-----	100	N/A	6e	Not prime farmland	B	Silty - Veg. Zone 3		.32	.32	5	6	48
VTD:VALENTINE---	65	N/A	6e	Not prime farmland	A	Sands - Veg. Zone 3		.15	.15	5	1	250
VTD:THURMAN-----	35	N/A	6e	Not prime farmland	A	Sands - Veg. Zone 3		.17	.17	5	2	134
VaC:VALENTINE---	100	N/A	6e	Not prime farmland	A	Sands - Veg. Zone 3		.15	.15	5	1	250
W:WATER-----	100	N/A	N/A	Not prime farmland		Unspecified		---	---	-	---	0

RANGELAND PRODUCTIVITY
Howard County, Nebraska

Use and Explanation of Rangeland, Grazed Forest Land, Native Pastureland Interpretations

Information in this subsection can be used to plan the use and management of soils for rangeland, grazed forest land, and native pasture. Different kinds of soils vary in their capacity to produce native grasses and other plants suitable for grazing. Information in this subsection provides groupings of similar soils and estimates of potential forage production, which can be used to determine livestock stocking rates.

Rangeland. Range is land on which the native vegetation (climax or natural potential plant community) is predominantly grasses, grasslike plants, forbs, and shrubs suitable for grazing and browsing. Range includes natural grasslands, savannas, many wetlands, some deserts, tundra, and certain shrub and forb communities. Rangeland receives no regular or frequent cultural treatment. The composition and production of the plant community are determined by soil, climate, topography, overstory canopy, and grazing management.

Grazed Forest Land. Includes land on which the understory includes, as an integral part of the forest plant community, plants that can be grazed without significantly impairing other forest values.

Native Pasture. Includes land on which the native vegetation (climax or natural potential plant community) is forest but which is used and managed primarily for production of native plants for forage. Native pasture includes cut-over forest land and forest land cleared and now managed for native or naturalized forage plants.

Rangeland

In areas that have similar climate and topography, differences in the kind and amount of vegetation produced on rangeland are closely related to the kind of soil. Effective management based on the relationship between the soils and vegetation and water.

The Rangeland, Grazed Forest land, Native Pastureland Interpretations shows, for each soil that supports rangeland vegetation, the ecological site and the potential annual production of vegetation in favorable, normal, unfavorable years. An explanation of the column headings in this table follows.

An ecological site is the product of all the environmental factors responsible for its development. It has characteristic soils that have developed over time throughout the soil development process; a characteristic hydrology, particularly infiltration and runoff, that has developed over time; and a characteristic plant community (kind and amount of vegetation). The hydrology of a site is influenced by development of the soil and plant community. The vegetation, soils, and hydrology are all interrelated. Each is influenced by the others and influences the development of the others. The plant community on an ecological site is typified by an association of species that differs from that of other ecological sites in the kind and/or proportion of species or in total production. Descriptions of ecological sites are provided in the Field Office Technical Guide, which is available in local offices of the Natural Resources Conservation Service.

Total dry-weight production is the amount of vegetation that can be expected to grow annually on well managed rangeland that is supporting the potential natural plant community. It includes all vegetation, whether or not it is palatable to grazing animals. It includes the current year's growth of leaves, twigs, and fruits of woody plants. It does not include the increase in stem diameter of trees and shrubs. It is expressed in pounds per acre of air-dry vegetation for favorable, average, and unfavorable years. In a favorable year, the amount and distribution of precipitation and the temperatures make growing conditions substantially better than average. In a normal year, growing conditions are about average. In an unfavorable year, growing conditions are well below average, generally because of low available soil moisture. Yields are adjusted to a common percent of air-dry moisture content.

Range management requires a knowledge of the kinds of soil and of the potential natural plant community. It also requires an evaluation of the present range similarity index and rangeland trend. Range similarity index is determined by comparing the present plant community with the potential natural plant community on a particular rangeland ecological site. The more closely the existing community resembles the potential community, the higher the range similarity index. Rangeland trend is defined as the direction of change in an existing plant community relative to the potential natural plant community. Further information about the range similarity index and rangeland trend is available in chapter 4 of the National Range and Pasture Handbook, which is available in local offices of the Natural Resources Conservation Service. The objective in range management is to control grazing so that the plants growing on a site are about the same in kind and amount as the potential natural plant community for that site. Such management generally results in the optimum production of vegetation, control of undesirable brush species, conservation of water, and control of erosion. Sometimes, however, an area with a range similarity index somewhat below the potential meets grazing needs, provides wildlife habitat, and protects soil and water resources.

RANGELAND PRODUCTIVITY--Continued
Howard County, Nebraska

(Only the soils that support rangeland vegetation suitable for grazing are rated.) Refer to range site description to determine the percentage allowable of grasses, forbs, and shrubs for the range ecological site.

Map symbol and soil name	Ecological site	Total dry-weight production		
		Favorable year	Average year	Unfavorable year
		Lb/acre	Lb/acre	Lb/acre
2Hb: Hobbs-----	Silty Overflow - Veg. Zone 3	4,500	4,000	3,800
2ThA: Thurman-----	Sandy - Veg. Zone 3	3,000	2,600	2,300
2To: Almeria-----	Wet Subirrigated - Veg. Zone 3	5,800	5,200	4,700
AED: Arents, Earthen Dam-----	---	---	---	---
B: Psammments-----	---	---	---	---
Boa: Boel-----	Subirrigated - Veg. Zone 3	5,200	4,900	4,600
Bob: Boel-----	Subirrigated - Veg. Zone 3	5,200	4,900	4,600
Boc: Boel-----	Subirrigated - Veg. Zone 3	5,200	4,900	4,600
CbC: Coly-----	Limy Upland - Veg. Zone 3	3,300	3,000	2,700
CbD: Coly-----	Limy Upland - Veg. Zone 3	3,300	3,000	2,700
CUD: Coly-----	Limy Upland - Veg. Zone 3	3,300	3,000	2,700
Uly-----	Silty - Veg. Zone 3	3,700	3,200	2,700
Da: Darr-----	Sandy Lowland - Veg. Zone 3	3,000	2,800	2,500
Db: Darr-----	Sandy Lowland - Veg. Zone 3	3,000	2,800	2,500
De: Detroit-----	Silty Lowland - Veg. Zone 3	6,000	4,500	3,000
Ea: Elsmere-----	Subirrigated - Veg. Zone 3	5,500	5,300	5,000
Gg: Gibbon-----	Subirrigated - Veg. Zone 3	5,500	5,300	5,000
Gk: Gibbon-----	Subirrigated - Veg. Zone 3	5,500	5,300	5,000
GP: Grigston-----	Silty Lowland - Veg. Zone 3	5,000	4,000	3,000
GsC3: Nuckolls Variant-----	---	---	---	---
GSD3: Nuckolls Variant-----	Silty - Veg. Zone 3	3,300	2,700	2,200
Ha: Hall-----	Silty Lowland - Veg. Zone 3	4,000	3,600	3,300
Hb: Hord-----	Silty Lowland - Veg. Zone 3	4,500	4,200	3,800
HbA: Hord-----	Silty Lowland - Veg. Zone 3	4,500	4,200	3,800
HbB: Hord-----	Silty - Veg. Zone 3	4,000	3,600	3,300
Hd: Hord-----	Silty Lowland - Veg. Zone 3	4,000	3,600	3,300
Hg: Holdrege-----	Silty - Veg. Zone 3	4,000	3,600	3,300
HgA: Holdrege-----	Silty - Veg. Zone 3	4,000	3,600	3,300
HgB2: Holdrege-----	Silty - Veg. Zone 3	4,000	3,600	3,300
HgC: Holdrege-----	Silty - Veg. Zone 3	4,000	3,600	3,300
HpC2: Holdrege-----	Silty - Veg. Zone 3	4,000	3,600	3,300
HpC3: Holdrege Variant-----	Silty - Veg. Zone 3	3,600	3,200	2,700
Hs: Harney-----	Silty - Veg. Zone 3	5,000	3,500	2,000
Ia: Inavale-----	Sandy Lowland - Veg. Zone 3	3,200	2,900	2,600
If: Inavale-----	Sandy Lowland - Veg. Zone 3	3,500	3,000	2,200
Ig: Inavale-----	Sandy Lowland - Veg. Zone 3	3,500	3,000	2,200
In: Inavale-----	Sandy Lowland - Veg. Zone 3	3,200	2,900	2,600
INT: Aquolls-----	---	---	---	---
Ks: Kenesaw-----	Silty - Veg. Zone 3	4,000	3,600	3,300
KsB: Kenesaw-----	Silty - Veg. Zone 3	4,000	3,600	3,300
KsC: Kenesaw-----	Silty - Veg. Zone 3	4,000	3,600	3,300
KSz: Kenesaw-----	Silty - Veg. Zone 3	4,000	3,600	3,300
Cozad-----	Silty Lowland - Veg. Zone 3	4,500	3,700	2,500

RANGELAND PRODUCTIVITY--Continued
Howard County, Nebraska

(Only the soils that support rangeland vegetation suitable for grazing are rated.) Refer to range site description to determine the percentage allowable of grasses, forbs, and shrubs for the range ecological site.

Map symbol and soil name	Ecological site	Total dry-weight production		
		Favorable year	Average year	Unfavorable year
		Lb/acre	Lb/acre	Lb/acre
L: Loretto-----	Silty - Veg. Zone 3	3,500	3,300	3,000
La: Lamo-----	Subirrigated - Veg. Zone 3	5,500	4,900	4,200
LB: Libory-----	Sandy Lowland - Veg. Zone 3	4,300	3,500	2,700
Boelus-----	Sandy - Veg. Zone 3	3,500	3,300	3,000
LC: Libory-----	Sandy Lowland - Veg. Zone 3	4,300	3,500	2,700
Boelus-----	Sandy - Veg. Zone 3	3,500	3,300	3,000
M: Fluvaquents-----	---	---	---	---
M-W: Miscellaneous Water-----	---	---	---	---
NsD3: Nuckolls Variant-----	Silty - Veg. Zone 3	3,300	2,700	2,200
Oa: Ovina-----	Subirrigated - Veg. Zone 3	6,300	5,900	5,500
ObB: Ortello-----	Sandy - Veg. Zone 3	4,000	3,600	3,300
Oe: Ord-----	Subirrigated - Veg. Zone 3	5,500	5,300	5,000
Of: Ord-----	Subirrigated - Veg. Zone 3	5,500	5,300	5,000
Ok: O'Neill-----	Sandy - Veg. Zone 3	3,500	3,300	3,000
OrA: Ortello-----	Sandy - Veg. Zone 3	3,500	3,300	3,000
Ot: Ortello-----	Sandy - Veg. Zone 3	3,500	3,300	3,000
OtB: Ortello-----	Sandy - Veg. Zone 3	3,500	3,300	3,000
OxD: Ortello-----	Sandy - Veg. Zone 3	3,500	3,300	3,000
Coly-----	Limy Upland - Veg. Zone 3	3,300	3,000	2,700
RB: Coly-----	Thin Loess - Veg. Zone 3	2,800	2,600	2,400
Ru: Rusco-----	Silty Overflow - Veg. Zone 3	3,500	3,000	2,500
Sm: Simeon-----	Shallow To Gravel - Veg. Zone 3	1,800	1,600	1,100
SS: Silver Creek-----	Subirrigated - Veg. Zone 3	3,800	3,400	3,000
Slickspots-----	Saline Lowland - Veg. Zone 3	2,200	2,000	1,700
Sy: Hobbs-----	Silty Overflow - Veg. Zone 3	4,500	4,000	3,800
TfB: Thurman-----	Sandy - Veg. Zone 3	3,500	3,300	3,000
ThA: Thurman-----	Sandy - Veg. Zone 3	3,500	3,300	3,000
ThB: Thurman-----	Sandy - Veg. Zone 3	3,500	3,300	3,000
Ty: Almeria-----	Wet Land - Veg. Zone 3	6,000	5,400	5,000
UsC: Uly-----	Silty - Veg. Zone 3	3,700	3,200	2,700
UsD: Uly-----	Silty - Veg. Zone 3	3,700	3,200	2,700
VaC: Valentine-----	Sands - Veg. Zone 3	3,000	2,600	2,200
VTD: Valentine-----	Sands - Veg. Zone 3	3,000	2,600	2,200
Thurman-----	Sands - Veg. Zone 3	3,500	3,300	3,000
W: Water-----	---	---	---	---

BUILDING SITE DEVELOPMENT
Howard County, Nebraska

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. These tables show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

The ratings in the tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. Not limited indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. Slightly limited indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. Somewhat limited indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. Very limited indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

BUILDING SITE DEVELOPMENT--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
2Hb: Hobbs-----	100	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
2ThA: Thurman-----	100	Not limited		Not limited		Not limited	
2To: Almeria-----	100	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00
AED: Arents, Earthen Dam-	100	Not rated		Not rated		Not rated	
B: Psammments-----	100	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
Boa: Boel-----	100	Very limited Flooding Depth to saturated zone	1.00 0.07	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 0.07
Bob: Boel-----	100	Somewhat limited Depth to saturated zone	0.07	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.07
Boc: Boel-----	100	Somewhat limited Depth to saturated zone	0.07	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.07
ChC: Coly-----	100	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00	Very limited Slope	1.00
ChD: Coly-----	100	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
CUD: Coly-----	60	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Uly-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Da: Darr-----	100	Not limited		Not limited		Not limited	
Db: Darr-----	100	Not limited		Not limited		Not limited	
De: Detroit-----	100	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
Ea: Elsmere-----	100	Somewhat limited Depth to saturated zone	0.07	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.07
Gg: Gibbon-----	100	Somewhat limited Shrink-swell	0.50	Very limited Depth to saturated zone Shrink-swell	1.00 0.50	Somewhat limited Shrink-swell	0.50
Gibbon-----	100	Depth to saturated zone Somewhat limited Shrink-swell	0.07 0.50	Very limited Depth to saturated zone Shrink-swell	0.50 1.00	Depth to saturated zone Somewhat limited Shrink-swell	0.07 0.50
Gk: Grigston-----	100	Depth to saturated zone	0.07	Depth to saturated zone Shrink-swell	0.50	Depth to saturated zone	0.07
GP: Pits-----	100	Not limited		Not limited		Not limited	
GsC3: Nuckolls Variant----	100	Not rated		Not rated		Not rated	
GsD3: Nuckolls Variant----	100	Somewhat limited Shrink-swell Slope	0.50 0.04	Somewhat limited Shrink-swell Slope	0.50 0.04	Very limited Slope Shrink-swell	1.00 0.50
Ha: Hall-----	100	Somewhat limited Slope Shrink-swell	0.84 0.50	Somewhat limited Slope Shrink-swell	0.84 0.50	Very limited Slope Shrink-swell	1.00 0.50
		Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50

BUILDING SITE DEVELOPMENT--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Hb: Hord-----	100	Not limited		Not limited		Not limited	
HbA: Hord-----	100	Not limited		Not limited		Not limited	
HbB: Hord-----	100	Not limited		Not limited		Somewhat limited Slope	0.00
Hd: Hord-----	100	Not limited		Not limited		Not limited	
Hg: Holdrege-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
HgA: Holdrege-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
HgB2: Holdrege-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Slope	0.50 0.00
HgC: Holdrege-----	100	Somewhat limited Shrink-swell Slope	0.50 0.00	Somewhat limited Shrink-swell Slope	0.50 0.00	Very limited Slope Shrink-swell	1.00 0.50
HpC2: Holdrege-----	100	Somewhat limited Shrink-swell Slope	0.50 0.00	Somewhat limited Shrink-swell Slope	0.50 0.00	Very limited Slope Shrink-swell	1.00 0.50
HpC3: Holdrege Variant----	100	Somewhat limited Shrink-swell Slope	0.50 0.00	Somewhat limited Shrink-swell Slope	0.50 0.00	Very limited Slope Shrink-swell	1.00 0.50
Hs: Harney-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
Ia: Inavale-----	100	Not limited		Not limited		Not limited	
If: Inavale-----	100	Not limited		Not limited		Not limited	
Ig: Inavale-----	100	Not limited		Not limited		Not limited	
In: Inavale-----	100	Not limited		Not limited		Not limited	
INT: Aqulls-----	100	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Ks: Kenesaw-----	100	Not limited		Not limited		Not limited	
KsB: Kenesaw-----	100	Not limited		Not limited		Not limited	
KsC: Kenesaw-----	100	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00	Very limited Slope	1.00
KSz: Kenesaw-----	70	Not limited		Not limited		Not limited	
Cozad-----	30	Not limited		Somewhat limited Depth to saturated zone	0.35	Not limited	
L: Loretto-----	100	Not limited		Not limited		Not limited	
La: Lamo-----	100	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50
		Depth to saturated zone	0.39		0.50	Depth to saturated zone	0.39
LB: Libory-----	70	Somewhat limited Depth to saturated zone	0.07	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.07
Boelus-----	30	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50

BUILDING SITE DEVELOPMENT--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LC: Libory-----	75	Somewhat limited Depth to saturated zone	0.07	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.07
Boelus-----	25	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
M: Fluvaquents-----	100	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00
M-W: Miscellaneous Water-	100	Not rated		Not rated		Not rated	
NsD3: Nuckolls Variant----	100	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50
Oa: Ovina-----	100	Somewhat limited Depth to saturated zone	0.39	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.39
ObB: Ortello-----	100	Not limited		Not limited		Not limited	
Oe: Ord-----	100	Somewhat limited Depth to saturated zone	0.07	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.07
Of: Ord-----	100	Somewhat limited Depth to saturated zone	0.07	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.07
Ok: O'Neill-----	100	Not limited		Not limited		Not limited	
OrA: Ortello-----	100	Not limited		Not limited		Not limited	
Ot: Ortello-----	100	Not limited		Not limited		Not limited	
OtB: Ortello-----	100	Not limited		Not limited		Somewhat limited Slope	0.00
OxD: Ortello-----	60	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Coly-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
RB: Coly-----	100	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Ru: Rusco-----	100	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Depth to saturated zone	1.00 0.95	Very limited Flooding Shrink-swell	1.00 0.50
Sm: Simeon-----	100	Not limited		Not limited		Not limited	
SS: Silver Creek-----	65	Very limited Shrink-swell Depth to saturated zone	1.00 0.07	Very limited Depth to saturated zone Shrink-swell	1.00 0.50	Very limited Shrink-swell Depth to saturated zone	1.00 0.07
Slickspots-----	35	Very limited Shrink-swell	1.00	Very limited Shrink-swell Depth to saturated zone	1.00 0.35	Very limited Shrink-swell	1.00
Sy: Hobbs-----	100	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
TfB: Thurman-----	100	Not limited		Not limited		Somewhat limited Slope	0.00
ThA: Thurman-----	100	Not limited		Not limited		Not limited	
ThB: Thurman-----	100	Not limited		Not limited		Somewhat limited Slope	0.00

BUILDING SITE DEVELOPMENT--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ty: Almeria-----	100	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00
UsC: Uly-----	100	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00	Very limited Slope	1.00
UsD: Uly-----	100	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84	Very limited Slope	1.00
VaC: Valentine-----	100	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84	Very limited Slope	1.00
VTD: Valentine-----	65	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84	Very limited Slope	1.00
Thurman-----	35	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope	1.00
W: Water-----	100	Not rated		Not rated		Not rated	

BUILDING SITE DEVELOPMENT--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
2Hb: Hobbs-----	100	Very limited Flooding Frost action	1.00 0.50	Somewhat limited Flooding Cutbanks cave	0.60 0.10	Somewhat limited Flooding	0.60
2ThA: Thurman-----	100	Not limited		Very limited Cutbanks cave	1.00	Not limited	
2To: Almeria-----	100	Very limited Flooding	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Cutbanks cave	1.00	Flooding	0.60
		Frost action	0.50	Flooding	0.60		
AED: Arents, Earthen Dam-	100	Not rated		Not rated		Not rated	
B: Psammments-----	100	Somewhat limited Slope	0.16	Very limited Cutbanks cave Depth to dense layer Slope	1.00 0.50 0.16	Somewhat limited Droughty Slope	0.69 0.16
Boa: Boel-----	100	Somewhat limited Frost action Flooding	0.50 0.40	Very limited Cutbanks cave Depth to saturated zone	1.00 1.00	Somewhat limited Droughty Depth to saturated zone	0.12 0.03
		Depth to saturated zone	0.03				
Bob: Boel-----	100	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Somewhat limited Depth to saturated zone	0.03
		Depth to saturated zone	0.03	Depth to saturated zone	1.00		
Boc: Boel-----	100	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Somewhat limited Depth to saturated zone	0.03
		Depth to saturated zone	0.03	Depth to saturated zone	1.00		
CbC: Coly-----	100	Somewhat limited Frost action Slope	0.50 0.00	Somewhat limited Cutbanks cave Slope	0.10 0.00	Somewhat limited Slope	0.00
CbD: Coly-----	100	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
CUD: Coly-----	60	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
Uly-----	40	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
Da: Darr-----	100	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Not limited	
Db: Darr-----	100	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Not limited	
De: Detroit-----	100	Very limited Shrink-swell	1.00	Somewhat limited Cutbanks cave	0.10	Not limited	
Ea: Elsmere-----	100	Somewhat limited Frost action Depth to saturated zone	0.50 0.03	Very limited Cutbanks cave Depth to saturated zone	1.00 1.00	Somewhat limited Droughty Depth to saturated zone	0.39 0.03

BUILDING SITE DEVELOPMENT--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Gg: Gibbon-----	100	Very limited Frost action	1.00	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.03
		Shrink-swell Depth to saturated zone	0.50 0.03	Cutbanks cave	0.10		
Gibbon-----	100	Very limited Frost action	1.00	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.03
		Shrink-swell Depth to saturated zone	0.50 0.03	Cutbanks cave	0.10		
Gk: Grigston-----	100	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
GP: Pits-----	100	Not rated		Not rated		Not rated	
GsC3: Nuckolls Variant----	100	Somewhat limited Shrink-swell Frost action Slope	0.50 0.50 0.04	Somewhat limited Cutbanks cave Slope	0.10 0.04	Somewhat limited Slope	0.04
GsD3: Nuckolls Variant----	100	Somewhat limited Slope Shrink-swell Frost action	0.84 0.50 0.50	Somewhat limited Slope Cutbanks cave	0.84 0.10	Somewhat limited Slope	0.84
Ha: Hall-----	100	Somewhat limited Shrink-swell Frost action	0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Hb: Hord-----	100	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
HbA: Hord-----	100	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
HbB: Hord-----	100	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Hd: Hord-----	100	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Hg: Holdrege-----	100	Somewhat limited Shrink-swell Frost action	0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
HgA: Holdrege-----	100	Somewhat limited Shrink-swell Frost action	0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
HgB2: Holdrege-----	100	Somewhat limited Shrink-swell Frost action	0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
HgC: Holdrege-----	100	Somewhat limited Shrink-swell Frost action Slope	0.50 0.50 0.00	Somewhat limited Cutbanks cave Slope	0.10 0.00	Somewhat limited Slope	0.00
HpC2: Holdrege-----	100	Somewhat limited Shrink-swell Frost action Slope	0.50 0.50 0.00	Somewhat limited Cutbanks cave Slope	0.10 0.00	Somewhat limited Slope	0.00
HpC3: Holdrege Variant----	100	Somewhat limited Shrink-swell Frost action Slope	0.50 0.50 0.00	Somewhat limited Cutbanks cave Slope	0.10 0.00	Somewhat limited Slope	0.00
Hs: Harney-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	

BUILDING SITE DEVELOPMENT--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ia: Inavale-----	100	Not limited		Very limited Cutbanks cave	1.00	Somewhat limited Droughty	0.01
If: Inavale-----	100	Not limited		Very limited Cutbanks cave	1.00	Somewhat limited Droughty	0.30
Ig: Inavale-----	100	Not limited		Very limited Cutbanks cave	1.00	Somewhat limited Droughty	0.14
In: Inavale-----	100	Not limited		Very limited Cutbanks cave	1.00	Somewhat limited Droughty	0.01
INT: Aquolls-----	100	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding Cutbanks cave	1.00 1.00 0.10	Very limited Depth to saturated zone Ponding	1.00 1.00
Ks: Kenesaw-----	100	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
KsB: Kenesaw-----	100	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
KsC: Kenesaw-----	100	Somewhat limited Frost action Slope	0.50 0.00	Somewhat limited Cutbanks cave Slope	0.10 0.00	Somewhat limited Slope	0.00
KSz: Kenesaw-----	70	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Cozad-----	30	Somewhat limited Frost action	0.50	Somewhat limited Depth to saturated zone Cutbanks cave	0.35 0.10	Not limited	
L: Loretto-----	100	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
La: Lamo-----	100	Very limited Frost action Flooding Shrink-swell Depth to saturated zone	1.00 1.00 0.50 0.19	Very limited Depth to saturated zone Flooding Cutbanks cave	1.00 0.60 0.10	Somewhat limited Flooding Depth to saturated zone	0.60 0.19
LB: Libory-----	70	Somewhat limited Depth to saturated zone	0.03	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Somewhat limited Depth to saturated zone	0.03
Boelus-----	30	Somewhat limited Shrink-swell Frost action	0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
LC: Libory-----	75	Somewhat limited Depth to saturated zone	0.03	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Somewhat limited Depth to saturated zone	0.03
Boelus-----	25	Somewhat limited Shrink-swell Frost action	0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
M: Fluvaquents-----	100	Very limited Depth to saturated zone Flooding Frost action	1.00 1.00 0.50	Very limited Depth to saturated zone Flooding Cutbanks cave	1.00 0.80 0.10	Very limited Flooding Depth to saturated zone	1.00 1.00
M-W: Miscellaneous Water-	100	Not rated		Not rated		Not rated	

BUILDING SITE DEVELOPMENT--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
NsD3: Nuckolls Variant----	100	Very limited Slope Shrink-swell Frost action	1.00 0.50 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
Oa: Ovina-----	100	Very limited Frost action Depth to saturated zone	1.00 0.19	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Somewhat limited Depth to saturated zone	0.19
ObB: Ortello-----	100	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Oe: Ord-----	100	Very limited Frost action Depth to saturated zone	1.00 0.03	Very limited Cutbanks cave Depth to saturated zone	1.00 1.00	Somewhat limited Depth to saturated zone	0.03
Of: Ord-----	100	Very limited Frost action Depth to saturated zone	1.00 0.03	Very limited Cutbanks cave Depth to saturated zone	1.00 1.00	Somewhat limited Depth to saturated zone	0.03
Ok: O'neill-----	100	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Somewhat limited Droughty	0.06
OrA: Ortello-----	100	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Not limited	
Ot: Ortello-----	100	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Not limited	
OtB: Ortello-----	100	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Not limited	
OxD: Ortello-----	60	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
Coly-----	40	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
RB: Coly-----	100	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
Ru: Rusco-----	100	Very limited Frost action Flooding Shrink-swell	1.00 1.00 0.50	Somewhat limited Depth to saturated zone Flooding Cutbanks cave	0.95 0.60 0.10	Somewhat limited Flooding	0.60
Sm: Simeon-----	100	Not limited		Very limited Cutbanks cave	1.00	Somewhat limited Droughty	0.17
SS: Silver Creek-----	65	Very limited Frost action Shrink-swell Depth to saturated zone	1.00 1.00 0.03	Very limited Depth to saturated zone Cutbanks cave Too clayey	1.00 0.10 0.01	Somewhat limited Depth to saturated zone	0.03
Slickspots-----	35	Very limited Shrink-swell Frost action	1.00 0.50	Somewhat limited Depth to saturated zone Cutbanks cave Too clayey	0.35 0.10 0.03	Very limited Sodium content	1.00
Sy: Hobbs-----	100	Very limited Flooding Frost action	1.00 0.50	Somewhat limited Flooding Cutbanks cave	0.80 0.10	Very limited Flooding	1.00
TfB: Thurman-----	100	Not limited		Very limited Cutbanks cave	1.00	Somewhat limited Droughty	0.10

BUILDING SITE DEVELOPMENT--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
ThA: Thurman-----	100	Not limited		Very limited Cutbanks cave	1.00	Somewhat limited Droughty	0.24
ThB: Thurman-----	100	Not limited		Very limited Cutbanks cave	1.00	Somewhat limited Droughty	0.24
Ty: Almeria-----	100	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		Flooding	1.00	Cutbanks cave	1.00	Flooding	0.60
		Frost action	0.50	Flooding	0.60		
UsC: Uly-----	100	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Somewhat limited Slope	0.00
		Slope	0.00	Slope	0.00		
UsD: Uly-----	100	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84
		Frost action	0.50	Cutbanks cave	0.10		
VaC: Valentine-----	100	Somewhat limited Slope	0.84	Very limited Cutbanks cave	1.00	Somewhat limited Slope	0.84
				Slope	0.84	Droughty	0.71
VTD: Valentine-----	65	Somewhat limited Slope	0.84	Very limited Cutbanks cave	1.00	Somewhat limited Slope	0.84
				Slope	0.84	Droughty	0.71
Thurman-----	35	Somewhat limited Slope	0.04	Very limited Cutbanks cave	1.00	Somewhat limited Droughty	0.24
				Slope	0.04	Slope	0.04
W: Water-----	100	Not rated		Not rated		Not rated	

CONSTRUCTION MATERIALS
Howard County, Nebraska

Construction Materials

These tables give information about the soils as potential sources of gravel, sand, topsoil, reclamation material, and roadfill. Normal compaction, minor processing, and other standard construction practices are assumed.

The soils are rated good, fair, or poor as potential sources of topsoil, reclamation material, and roadfill. The features that limit the soils as sources of these materials are specified in the tables. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of topsoil, reclamation material, or roadfill. The lower the number, the greater the limitation.

The soils are rated as a probable or improbable source of sand and gravel. A rating of probable means that the source material is likely to be in or below the soil. The numerical ratings in these columns indicate the degree of probability. The number 0.00 indicates that the soil is an improbable source. A number between 0.00 and 1.00 indicates the degree to which the soil is a probable source of sand or gravel.

Sand and gravel are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In the first table, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the lowest layer of the soil contains sand or gravel, the soil is rated as a probable source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

CONSTRUCTION MATERIALS--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
2Hb: Hobbs-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
2ThA: Thurman-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.65 0.98
2To: Almeria-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.00 0.22
AED: Arents, Earthen Dam-	100	Not rated		Not rated	
B: Psammets-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.22 0.22
Boa: Boel-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Good Thickest layer	0.22
Bob: Boel-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Good Thickest layer	0.08
Boc: Boel-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Good Thickest layer	0.00
CbC: Coly-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
CbD: Coly-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
CUD: Coly-----	60	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Uly-----	40	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Da: Darr-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.08 0.26
Db: Darr-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.07 0.22
De: Detroit-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Ea: Elsmere-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.17 0.31

CONSTRUCTION MATERIALS--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
Gg: Gibbon-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Gibbon-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Gk: Grigston-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
GP: Pits-----	100	Not rated		Not rated	
GsC3: Nuckolls Variant----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
GsD3: Nuckolls Variant----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Ha: Hall-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Hb: Hord-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
HbA: Hord-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
HbB: Hord-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Hd: Hord-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Hg: Holdrege-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
HgA: Holdrege-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
HgB2: Holdrege-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
HgC: Holdrege-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
HpC2: Holdrege-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00

CONSTRUCTION MATERIALS--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
HpC3: Holdrege Variant----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Hs: Harney-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Ia: Inavale-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.00 0.22
If: Inavale-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.31 0.31
Ig: Inavale-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.22 0.22
In: Inavale-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.08 0.22
INT: Aquolls-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Ks: Kenesaw-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
KsB: Kenesaw-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
KsC: Kenesaw-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
KSz: Kenesaw-----	70	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Cozad-----	30	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
L: Loretto-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
La: Lamo-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
LB: Libory-----	70	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.99
Boelus-----	30	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00

CONSTRUCTION MATERIALS--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
LC: Libory-----	75	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.62
Boelus-----	25	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
M: Fluvaquents-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
M-W: Miscellaneous Water-	100	Not rated		Not rated	
NsD3: Nuckolls Variant----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Oa: Ovina-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.08 0.09
ObB: Ortello-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.09 0.49
Oe: Ord-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.00 0.22
Of: Ord-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.07 0.67
Ok: O'Neill-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Good Thickest layer	0.00
OrA: Ortello-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.08 0.70
Ot: Ortello-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.08 0.70
OtB: Ortello-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.08 0.70
OxD: Ortello-----	60	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.08 0.08
Coly-----	40	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
RB: Coly-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00

CONSTRUCTION MATERIALS--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
Ru: Rusco-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Sm: Simeon-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.33 0.98
SS: Silver Creek-----	65	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Slickspots-----	35	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Sy: Hobbs-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
TfB: Thurman-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Good Thickest layer	0.49
ThA: Thurman-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Good Thickest layer	0.49
ThB: Thurman-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Good Thickest layer	0.49
Ty: Almeria-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.00 0.22
UsC: Uly-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
UsD: Uly-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
VaC: Valentine-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Good Thickest layer	0.70
VTD: Valentine-----	65	Poor Bottom layer Thickest layer	0.00 0.00	Good Thickest layer	0.70
Thurman-----	35	Poor Bottom layer Thickest layer	0.00 0.00	Good Thickest layer	0.49
W: Water-----	100	Not rated		Not rated	

CONSTRUCTION MATERIALS--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
2Hb: Hobbs-----	100	Fair Low content of organic matter Water erosion	0.88 0.90	Good		Good	
2ThA: Thurman-----	100	Poor Too sandy Wind erosion	0.00 0.00	Good		Poor Too sandy	0.00
2To: Almeria-----	100	Fair Low content of organic matter Too sandy	0.12 0.22	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Too sandy	0.00 0.22
AED: Arents, Earthen Dam-	100	Not rated		Not rated		Not rated	
B: Psammets-----	100	Poor Wind erosion Low content of organic matter Too sandy Droughty Too acid	0.00 0.12 0.22 0.35 0.97	Good		Poor Hard to reclaim Too sandy Slope	0.00 0.22 0.84
Boa: Boel-----	100	Poor Too sandy Wind erosion Low content of organic matter	0.00 0.00 0.12	Fair Depth to saturated zone	0.76	Poor Too sandy Depth to saturated zone	0.00 0.76
Bob: Boel-----	100	Poor Too sandy Low content of organic matter	0.00 0.12	Fair Depth to saturated zone	0.76	Poor Too sandy Depth to saturated zone	0.00 0.76
Boc: Boel-----	100	Poor Too sandy Low content of organic matter	0.00 0.12	Fair Depth to saturated zone	0.76	Poor Too sandy Depth to saturated zone	0.00 0.76
CbC: Coly-----	100	Fair Low content of organic matter Water erosion	0.88 0.90	Good		Good	
CbD: Coly-----	100	Fair Low content of organic matter Water erosion	0.88 0.90	Fair Slope	0.32	Poor Slope	0.00
CUD: Coly-----	60	Fair Low content of organic matter Water erosion	0.88 0.90	Fair Slope	0.08	Poor Slope	0.00
Uly-----	40	Fair Low content of organic matter Water erosion	0.12 0.90	Fair Slope	0.08	Poor Slope	0.00

CONSTRUCTION MATERIALS--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Da: Darr-----	100	Fair Low content of organic matter Droughty	0.12 0.87	Good		Fair Hard to reclaim	0.82
Db: Darr-----	100	Fair Low content of organic matter	0.12	Good		Fair Hard to reclaim	0.82
De: Detroit-----	100	Poor Too clayey Water erosion	0.00 0.99	Fair Shrink-swell	0.21	Poor Too Clayey	0.00
Ea: Elsmere-----	100	Poor Wind erosion Too sandy Low content of organic matter Droughty	0.00 0.08 0.12 0.43	Fair Depth to saturated zone	0.76	Fair Too sandy Depth to saturated zone	0.08 0.76
Gg: Gibbon-----	100	Fair Low content of organic matter	0.88	Fair Depth to saturated zone Shrink-swell	0.76 0.98	Fair Depth to saturated zone	0.76
Gibbon-----	100	Fair Low content of organic matter	0.88	Fair Depth to saturated zone Shrink-swell	0.76 0.98	Fair Depth to saturated zone	0.76
Gk: Grigston-----	100	Fair Low content of organic matter	0.12	Good		Good	
GP: Pits-----	100	Not rated		Not rated		Not rated	
GsC3: Nuckolls Variant----	100	Fair Low content of organic matter Water erosion	0.12 0.90	Fair Shrink-swell	0.87	Fair Slope	0.96
GsD3: Nuckolls Variant----	100	Fair Low content of organic matter Water erosion	0.12 0.90	Fair Shrink-swell	0.87	Fair Slope	0.16
Ha: Hall-----	100	Fair Water erosion Too clayey	0.90 0.92	Fair Shrink-swell	0.98	Fair Too Clayey	0.80
Hb: Hord-----	100	Fair Low content of organic matter Water erosion	0.12 0.90	Good		Good	
HbA: Hord-----	100	Fair Low content of organic matter Water erosion	0.12 0.90	Good		Good	
HbB: Hord-----	100	Fair Low content of organic matter Water erosion	0.12 0.90	Good		Good	

CONSTRUCTION MATERIALS--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Hd: Hord-----	100	Fair Low content of organic matter Water erosion	0.12 0.90	Good		Good	
Hg: Holdrege-----	100	Fair Water erosion Too clayey	0.90 0.92	Fair Shrink-swell	0.87	Fair Too Clayey	0.76
HgA: Holdrege-----	100	Fair Water erosion Too clayey	0.90 0.92	Fair Shrink-swell	0.87	Fair Too Clayey	0.76
HgB2: Holdrege-----	100	Fair Water erosion Too clayey	0.90 0.92	Fair Shrink-swell	0.87	Fair Too Clayey	0.76
HgC: Holdrege-----	100	Fair Water erosion Too clayey	0.90 0.92	Fair Shrink-swell	0.87	Fair Too Clayey	0.76
HpC2: Holdrege-----	100	Fair Low content of organic matter Water erosion Too clayey	0.12 0.90 0.92	Fair Shrink-swell	0.87	Fair Too Clayey	0.76
HpC3: Holdrege Variant----	100	Fair Low content of organic matter Water erosion Too clayey	0.12 0.90 0.92	Fair Shrink-swell	0.87	Fair Too Clayey	0.66
Hs: Harney-----	100	Fair Too clayey Water erosion	0.08 0.90	Fair Shrink-swell	0.98	Fair Too Clayey	0.07
Ia: Inavale-----	100	Fair Low content of organic matter Too sandy Droughty	0.12 0.22 0.96	Good		Fair Too sandy	0.22
If: Inavale-----	100	Poor Wind erosion Too sandy Low content of organic matter Droughty	0.00 0.08 0.12 0.74	Good		Fair Too sandy	0.08
Ig: Inavale-----	100	Poor Wind erosion Low content of organic matter Too sandy Droughty	0.00 0.12 0.22 0.84	Good		Fair Too sandy	0.22
In: Inavale-----	100	Fair Low content of organic matter Too sandy Droughty	0.12 0.22 0.96	Good		Fair Too sandy	0.22
INT: Aquolls-----	100	Poor Low content of organic matter	0.00	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone	0.00

CONSTRUCTION MATERIALS--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ks: Kenesaw-----	100	Fair Low content of organic matter Water erosion	0.88 0.90	Good		Good	
KsB: Kenesaw-----	100	Fair Low content of organic matter Water erosion	0.88 0.90	Good		Good	
KsC: Kenesaw-----	100	Fair Low content of organic matter Water erosion	0.88 0.90	Good		Good	
KSz: Kenesaw-----	70	Fair Low content of organic matter Water erosion	0.88 0.90	Good		Good	
Cozad-----	30	Poor Too alkaline Sodium content Low content of organic matter Water erosion	0.00 0.10 0.12 0.99	Good		Fair Sodium content Salinity	0.10 0.50
L: Loretto-----	100	Fair Too acid Low content of organic matter Water erosion	0.84 0.88 0.99	Good		Good	
La: Lamo-----	100	Fair Low content of organic matter Water erosion	0.88 0.90	Fair Depth to saturated zone Shrink-swell	0.53 0.87	Fair Depth to saturated zone	0.53
LB: Libory-----	70	Poor Wind erosion Low content of organic matter Water erosion	0.00 0.12 0.90	Fair Depth to saturated zone	0.76	Fair Depth to saturated zone	0.76
Boelus-----	30	Poor Wind erosion Low content of organic matter Water erosion	0.00 0.12 0.90	Fair Shrink-swell	0.95	Good	
LC: Libory-----	75	Poor Wind erosion Low content of organic matter Water erosion	0.00 0.12 0.90	Fair Depth to saturated zone	0.76	Fair Depth to saturated zone	0.76
Boelus-----	25	Poor Wind erosion Low content of organic matter Water erosion	0.00 0.12 0.90	Fair Shrink-swell	0.95	Good	
M: Fluvaquents-----	100	Good		Poor Depth to saturated zone	0.00	Poor Depth to saturated zone	0.00
M-W: Miscellaneous Water-	100	Not rated		Not rated		Not rated	

CONSTRUCTION MATERIALS--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
NsD3: Nuckolls Variant----	100	Fair Low content of organic matter Water erosion	0.88 0.90	Fair Slope Shrink-swell	0.08 0.87	Poor Slope	0.00
Oa: Ovina-----	100	Poor Wind erosion Low content of organic matter	0.00 0.88	Fair Depth to saturated zone	0.53	Fair Depth to saturated zone	0.53
ObB: Ortello-----	100	Poor Wind erosion Low content of organic matter	0.00 0.12	Good		Good	
Oe: Ord-----	100	Fair Low content of organic matter Carbonate content	0.12 0.80	Fair Depth to saturated zone	0.76	Fair Depth to saturated zone Carbonate content	0.76 0.80
Of: Ord-----	100	Fair Low content of organic matter Carbonate content Droughty	0.12 0.80 0.99	Fair Depth to saturated zone	0.76	Fair Depth to saturated zone Carbonate content	0.76 0.80
Ok: O'Neill-----	100	Poor Too sandy Low content of organic matter Droughty Too acid	0.00 0.12 0.37 0.84	Good		Poor Too sandy Rock fragments Hard to reclaim	0.00 0.00 0.92
OrA: Ortello-----	100	Fair Low content of organic matter	0.12	Good		Good	
Ot: Ortello-----	100	Fair Low content of organic matter	0.12	Good		Good	
OtB: Ortello-----	100	Fair Low content of organic matter	0.12	Good		Good	
OxD: Ortello-----	60	Fair Low content of organic matter	0.88	Fair Slope	0.08	Poor Slope	0.00
Coly-----	40	Fair Low content of organic matter Water erosion	0.88 0.90	Fair Slope	0.08	Poor Slope	0.00
RB: Coly-----	100	Fair Low content of organic matter Water erosion	0.88 0.90	Poor Slope	0.00	Poor Slope	0.00
Ru: Rusco-----	100	Fair Low content of organic matter Water erosion Too clayey	0.88 0.90 0.95	Good		Fair Too Clayey	0.69

CONSTRUCTION MATERIALS--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Sm: Simeon-----	100	Poor Too sandy Wind erosion Low content of organic matter	0.00 0.00 0.12	Good		Poor Too sandy	0.00
SS: Silver Creek-----	65	Poor Too clayey Low content of organic matter Water erosion	0.00 0.88 0.90	Fair Shrink-swell Depth to saturated zone	0.62 0.76	Poor Too Clayey Depth to saturated zone Salinity	0.00 0.76 0.88
Slickspots-----	35	Poor Sodium content Too clayey Low content of organic matter Salinity	0.00 0.00 0.88 0.99	Fair Shrink-swell	0.12	Poor Sodium content Too Clayey Salinity	0.00 0.00 0.00
Sy: Hobbs-----	100	Fair Low content of organic matter	0.88	Good		Good	
TfB: Thurman-----	100	Poor Wind erosion Too sandy Low content of organic matter	0.00 0.00 0.12	Good		Poor Too sandy	0.00
ThA: Thurman-----	100	Poor Too sandy Wind erosion Low content of organic matter Droughty	0.00 0.00 0.12 0.67	Good		Poor Too sandy	0.00
ThB: Thurman-----	100	Poor Too sandy Wind erosion Low content of organic matter Droughty	0.00 0.00 0.12 0.67	Good		Poor Too sandy	0.00
Ty: Almeria-----	100	Fair Low content of organic matter Too sandy	0.12 0.22	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Too sandy	0.00 0.22
UsC: Uly-----	100	Fair Low content of organic matter Water erosion	0.12 0.90	Good		Good	
UsD: Uly-----	100	Fair Low content of organic matter Water erosion	0.12 0.90	Good		Fair Slope	0.16
VaC: Valentine-----	100	Poor Too sandy Wind erosion Low content of organic matter Droughty	0.00 0.00 0.12 0.23	Good		Poor Too sandy Slope	0.00 0.16

CONSTRUCTION MATERIALS--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
VTD: Valentine-----	65	Poor Too sandy Wind erosion Low content of organic matter Droughty	0.00 0.00 0.12 0.23	Good		Poor Too sandy Slope	0.00 0.16
Thurman-----	35	Poor Too sandy Wind erosion Low content of organic matter Droughty	0.00 0.00 0.12 0.67	Good		Poor Too sandy Slope	0.00 0.96
W: Water-----	100	Not rated		Not rated		Not rated	

RECREATIONAL INTERPRETATIONS
Howard County, Nebraska

Recreation

The soils of the survey area are rated in the following tables according to limitations that affect their suitability for recreation. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. Not limited indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. Slightly limited indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. Somewhat limited indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. Very limited indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the tables are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The information in this table can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, sanitary facilities, and water management.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas.

The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

RECREATIONAL INTERPRETATIONS--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
2Hb: Hobbs-----	100	Very limited Flooding	1.00	Not limited		Somewhat limited Flooding	0.60
2ThA: Thurman-----	100	Somewhat limited Too sandy	0.95	Somewhat limited Too sandy	0.95	Somewhat limited Too sandy Slope	0.95 0.00
2To: Almeria-----	100	Very limited Flooding	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Flooding	1.00 0.60
AED: Arents, Earthen Dam-	100	Not rated		Not rated		Not rated	
B: Psammets-----	100	Somewhat limited Too sandy Slope	0.50 0.16	Somewhat limited Too sandy Slope	0.50 0.16	Very limited Slope Too sandy	1.00 0.50
Boa: Boel-----	100	Very limited Flooding Too sandy	1.00 0.50	Somewhat limited Too sandy Depth to saturated zone	0.50 0.03	Somewhat limited Too sandy Depth to saturated zone	0.50 0.07
Bob: Boel-----	100	Somewhat limited Depth to saturated zone	0.07	Somewhat limited Depth to saturated zone	0.03	Somewhat limited Depth to saturated zone	0.07
Boc: Boel-----	100	Somewhat limited Depth to saturated zone	0.07	Somewhat limited Depth to saturated zone	0.03	Somewhat limited Depth to saturated zone	0.07
CbC: Coly-----	100	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00	Very limited Slope	1.00
CbD: Coly-----	100	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
CUD: Coly-----	60	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Uly-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Da: Darr-----	100	Not limited		Not limited		Not limited	
Db: Darr-----	100	Not limited		Not limited		Not limited	
De: Detroit-----	100	Somewhat limited Restricted permeability	0.39	Somewhat limited Restricted permeability	0.39	Somewhat limited Restricted permeability	0.39
Ea: Elsmere-----	100	Somewhat limited Too sandy Depth to saturated zone	0.32 0.07	Somewhat limited Too sandy Depth to saturated zone	0.32 0.03	Somewhat limited Too sandy Depth to saturated zone	0.32 0.07
Gg: Gibbon-----	100	Somewhat limited Depth to saturated zone	0.07	Somewhat limited Depth to saturated zone	0.03	Somewhat limited Depth to saturated zone	0.07
Gibbon-----	100	Somewhat limited Depth to saturated zone	0.07	Somewhat limited Depth to saturated zone	0.03	Somewhat limited Depth to saturated zone	0.07
Gk: Grigston-----	100	Not limited		Not limited		Not limited	
GP: Pits-----	100	Not rated		Not rated		Not rated	
GsC3: Nuckolls Variant----	100	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope	1.00
GsD3: Nuckolls Variant----	100	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84	Very limited Slope	1.00
Ha: Hall-----	100	Not limited		Not limited		Not limited	

RECREATIONAL INTERPRETATIONS--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Hb: Hord-----	100	Not limited		Not limited		Not limited	
HbA: Hord-----	100	Not limited		Not limited		Somewhat limited Slope	0.00
HbB: Hord-----	100	Not limited		Not limited		Somewhat limited Slope	0.50
Hd: Hord-----	100	Not limited		Not limited		Not limited	
Hg: Holdrege-----	100	Not limited		Not limited		Not limited	
HgA: Holdrege-----	100	Not limited		Not limited		Somewhat limited Slope	0.00
HgB2: Holdrege-----	100	Not limited		Not limited		Somewhat limited Slope	0.50
HgC: Holdrege-----	100	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00	Very limited Slope	1.00
HpC2: Holdrege-----	100	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00	Very limited Slope	1.00
HpC3: Holdrege Variant----	100	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00	Very limited Slope	1.00
Hs: Harney-----	100	Somewhat limited Restricted permeability	0.40	Somewhat limited Restricted permeability	0.40	Somewhat limited Restricted permeability	0.40
Ia: Inavale-----	100	Not limited		Not limited		Somewhat limited Slope	0.00
If: Inavale-----	100	Somewhat limited Too sandy	0.68	Somewhat limited Too sandy	0.68	Somewhat limited Too sandy Slope	0.68 0.13
Ig: Inavale-----	100	Somewhat limited Too sandy	0.50	Somewhat limited Too sandy	0.50	Somewhat limited Too sandy Slope	0.50 0.13
In: Inavale-----	100	Not limited		Not limited		Somewhat limited Slope	0.00
INT: Aquolls-----	100	Very limited Depth to saturated zone Restricted permeability Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Restricted permeability Ponding	1.00 1.00 1.00	Very limited Restricted permeability Depth to saturated zone Ponding	1.00 1.00 1.00
Ks: Kenesaw-----	100	Not limited		Not limited		Not limited	
KsB: Kenesaw-----	100	Not limited		Not limited		Somewhat limited Slope	0.00
KsC: Kenesaw-----	100	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00	Very limited Slope	1.00
KSz: Kenesaw-----	70	Not limited		Not limited		Not limited	
Cozad-----	30	Not limited		Not limited		Not limited	
L: Loretto-----	100	Not limited		Not limited		Not limited	
La: Lamo-----	100	Very limited Flooding	1.00	Somewhat limited Depth to saturated zone	0.19	Somewhat limited Flooding	0.60
		Depth to saturated zone	0.39			Depth to saturated zone	0.39
LB: Libory-----	70	Very limited Too sandy Depth to saturated zone	1.00 0.07	Very limited Too sandy Depth to saturated zone	1.00 0.03	Very limited Too sandy Depth to saturated zone Slope	1.00 0.07 0.00
Boelus-----	30	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Too sandy	1.00
LC: Libory-----	75	Somewhat limited Too sandy	0.94	Somewhat limited Too sandy	0.94	Somewhat limited Too sandy	0.94

RECREATIONAL INTERPRETATIONS--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
		Depth to saturated zone	0.07	Depth to saturated zone	0.03	Depth to saturated zone	0.07
Boelus-----	25	Somewhat limited Too sandy	0.94	Somewhat limited Too sandy	0.94	Slope Somewhat limited Too sandy	0.00 0.94
M: Fluvaquents-----	100	Very limited Depth to saturated zone Flooding	1.00 1.00	Very limited Depth to saturated zone Flooding	1.00 0.40	Very limited Depth to saturated zone Flooding	1.00 1.00
M-W: Miscellaneous Water-	100	Not rated		Not rated		Not rated	
NsD3: Nuckolls Variant----	100	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Oa: Ovina-----	100	Somewhat limited Too sandy Depth to saturated zone	0.95 0.39	Somewhat limited Too sandy Depth to saturated zone	0.95 0.19	Somewhat limited Too sandy Depth to saturated zone Slope	0.95 0.39 0.00
ObB: Ortello-----	100	Somewhat limited Too sandy	0.87	Somewhat limited Too sandy	0.87	Somewhat limited Too sandy Slope	0.87 0.00
Oe: Ord-----	100	Somewhat limited Depth to saturated zone	0.07	Somewhat limited Depth to saturated zone	0.03	Somewhat limited Depth to saturated zone	0.07
Of: Ord-----	100	Somewhat limited Depth to saturated zone	0.07	Somewhat limited Depth to saturated zone	0.03	Somewhat limited Depth to saturated zone	0.07
Ok: O'Neill-----	100	Not limited		Not limited		Somewhat limited Slope	0.00
OrA: Ortello-----	100	Not limited		Not limited		Not limited	
Ot: Ortello-----	100	Not limited		Not limited		Not limited	
OtB: Ortello-----	100	Not limited		Not limited		Somewhat limited Slope	0.50
OxD: Ortello-----	60	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Coly-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
RB: Coly-----	100	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Ru: Rusco-----	100	Very limited Flooding	1.00	Not limited		Somewhat limited Flooding	0.60
Sm: Simeon-----	100	Somewhat limited Too sandy	0.72	Somewhat limited Too sandy	0.72	Somewhat limited Too sandy Slope	0.72 0.00
SS: Silver Creek-----	65	Somewhat limited Restricted permeability Depth to saturated zone	0.94 0.07	Somewhat limited Restricted permeability Depth to saturated zone	0.94 0.03	Somewhat limited Restricted permeability Depth to saturated zone	0.94 0.07
Slickspots-----	35	Very limited Sodium content Restricted permeability	1.00 0.45	Very limited Sodium content Restricted permeability	1.00 0.45	Very limited Sodium content Restricted permeability	1.00 0.45
Sy: Hobbs-----	100	Very limited Flooding	1.00	Somewhat limited Flooding	0.40	Very limited Flooding	1.00
TfB: Thurman-----	100	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Too sandy Slope	1.00 0.50
ThA: Thurman-----	100	Somewhat limited Too sandy	0.87	Somewhat limited Too sandy	0.87	Somewhat limited Too sandy Slope	0.87 0.00

RECREATIONAL INTERPRETATIONS--Continued
Howard County, Nebraska

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Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
ThB: Thurman-----	100	Somewhat limited Too sandy	0.87	Somewhat limited Too sandy	0.87	Somewhat limited Too sandy Slope	0.87 0.50
Ty: Almeria-----	100	Very limited Depth to saturated zone Flooding	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Flooding	1.00 0.60
UsC: Uly-----	100	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00	Very limited Slope	1.00
UsD: Uly-----	100	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84	Very limited Slope	1.00
VaC: Valentine-----	100	Very limited Too sandy Slope	1.00 0.84	Very limited Too sandy Slope	1.00 0.84	Very limited Too sandy Slope	1.00 1.00
VTD: Valentine-----	65	Very limited Too sandy Slope	1.00 0.84	Very limited Too sandy Slope	1.00 0.84	Very limited Too sandy Slope	1.00 1.00
Thurman-----	35	Somewhat limited Too sandy Slope	0.87 0.04	Somewhat limited Too sandy Slope	0.87 0.04	Very limited Slope Too sandy	1.00 0.87
W: Water-----	100	Not rated		Not rated		Not rated	

RECREATIONAL INTERPRETATIONS--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
2Hb: Hobbs-----	100	Not limited		Somewhat limited Flooding	0.60
2ThA: Thurman-----	100	Somewhat limited Too sandy	0.95	Not limited	
2To: Almeria-----	100	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Flooding	1.00 0.60
AED: Arents, Earthen Dam-	100	Not rated		Not rated	
B: Psammets-----	100	Somewhat limited Too sandy	0.50	Somewhat limited Droughty Slope	0.69 0.16
Boa: Boel-----	100	Somewhat limited Too sandy	0.50	Somewhat limited Droughty Depth to saturated zone	0.12 0.03
Bob: Boel-----	100	Not limited		Somewhat limited Depth to saturated zone	0.03
Boc: Boel-----	100	Not limited		Somewhat limited Depth to saturated zone	0.03
CbC: Coly-----	100	Not limited		Somewhat limited Slope	0.00
CbD: Coly-----	100	Somewhat limited Slope	0.68	Very limited Slope	1.00
CUD: Coly-----	60	Somewhat limited Slope	0.92	Very limited Slope	1.00
Uly-----	40	Somewhat limited Slope	0.92	Very limited Slope	1.00
Da: Darr-----	100	Not limited		Not limited	
Db: Darr-----	100	Not limited		Not limited	
De: Detroit-----	100	Not limited		Not limited	
Ea: Elsmere-----	100	Somewhat limited Too sandy	0.32	Somewhat limited Droughty Depth to saturated zone	0.39 0.03
Gg: Gibbon-----	100	Not limited		Somewhat limited Depth to saturated zone	0.03
Gibbon-----	100	Not limited		Somewhat limited Depth to saturated zone	0.03
Gk: Grigston-----	100	Not limited		Not limited	
GP: Pits-----	100	Not rated		Not rated	
GsC3: Nuckolls Variant----	100	Not limited		Somewhat limited Slope	0.04
GsD3: Nuckolls Variant----	100	Not limited		Somewhat limited Slope	0.84
Ha: Hall-----	100	Not limited		Not limited	
Hb: Hord-----	100	Not limited		Not limited	
HbA: Hord-----	100	Not limited		Not limited	

RECREATIONAL INTERPRETATIONS--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
HbB: Hord-----	100	Not limited		Not limited	
Hd: Hord-----	100	Not limited		Not limited	
Hg: Holdrege-----	100	Not limited		Not limited	
HgA: Holdrege-----	100	Not limited		Not limited	
HgB2: Holdrege-----	100	Not limited		Not limited	
HgC: Holdrege-----	100	Not limited		Somewhat limited Slope	0.00
HpC2: Holdrege-----	100	Not limited		Somewhat limited Slope	0.00
HpC3: Holdrege Variant----	100	Not limited		Somewhat limited Slope	0.00
Hs: Harney-----	100	Not limited		Not limited	
Ia: Inavale-----	100	Not limited		Somewhat limited Droughty	0.01
If: Inavale-----	100	Somewhat limited Too sandy	0.68	Somewhat limited Droughty	0.30
Ig: Inavale-----	100	Somewhat limited Too sandy	0.50	Somewhat limited Droughty	0.14
In: Inavale-----	100	Not limited		Somewhat limited Droughty	0.01
INT: Aquolls-----	100	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Ks: Kenesaw-----	100	Not limited		Not limited	
KsB: Kenesaw-----	100	Not limited		Not limited	
KsC: Kenesaw-----	100	Not limited		Somewhat limited Slope	0.00
KSz: Kenesaw-----	70	Not limited		Not limited	
Cozad-----	30	Not limited		Not limited	
L: Loretto-----	100	Not limited		Not limited	
La: Lamo-----	100	Not limited		Somewhat limited Flooding Depth to saturated zone	0.60 0.19
LB: Libory-----	70	Very limited Too sandy	1.00	Somewhat limited Depth to saturated zone	0.03
Boelus-----	30	Very limited Too sandy	1.00	Not limited	
LC: Libory-----	75	Somewhat limited Too sandy	0.94	Somewhat limited Depth to saturated zone	0.03
Boelus-----	25	Somewhat limited Too sandy	0.94	Not limited	
M: Fluvaquents-----	100	Very limited Depth to saturated zone Flooding	1.00 0.40	Very limited Flooding Depth to saturated zone	1.00 1.00
M-W: Miscellaneous Water-	100	Not rated		Not rated	
NsD3: Nuckolls Variant----	100	Somewhat limited Slope	0.92	Very limited Slope	1.00

RECREATIONAL INTERPRETATIONS--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Oa: Ovina-----	100	Somewhat limited Too sandy	0.95	Somewhat limited Depth to saturated zone	0.19
ObB: Ortello-----	100	Somewhat limited Too sandy	0.87	Not limited	
Oe: Ord-----	100	Not limited		Somewhat limited Depth to saturated zone	0.03
Of: Ord-----	100	Not limited		Somewhat limited Depth to saturated zone	0.03
Ok: O'Neill-----	100	Not limited		Somewhat limited Droughty	0.06
OrA: Ortello-----	100	Not limited		Not limited	
Ot: Ortello-----	100	Not limited		Not limited	
OtB: Ortello-----	100	Not limited		Not limited	
OxD: Ortello-----	60	Somewhat limited Slope	0.92	Very limited Slope	1.00
Coly-----	40	Somewhat limited Slope	0.92	Very limited Slope	1.00
RB: Coly-----	100	Very limited Slope	1.00	Very limited Slope	1.00
Ru: Rusco-----	100	Not limited		Somewhat limited Flooding	0.60
Sm: Simeon-----	100	Somewhat limited Too sandy	0.72	Somewhat limited Droughty	0.17
SS: Silver Creek-----	65	Not limited		Somewhat limited Depth to saturated zone	0.03
Slickspots-----	35	Not limited		Very limited Sodium content	1.00
Sy: Hobbs-----	100	Somewhat limited Flooding	0.40	Very limited Flooding	1.00
TfB: Thurman-----	100	Very limited Too sandy	1.00	Somewhat limited Droughty	0.10
ThA: Thurman-----	100	Somewhat limited Too sandy	0.87	Somewhat limited Droughty	0.24
ThB: Thurman-----	100	Somewhat limited Too sandy	0.87	Somewhat limited Droughty	0.24
Ty: Almeria-----	100	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Flooding	1.00 0.60
UsC: Uly-----	100	Not limited		Somewhat limited Slope	0.00
UsD: Uly-----	100	Not limited		Somewhat limited Slope	0.84
VaC: Valentine-----	100	Very limited Too sandy	1.00	Somewhat limited Slope Droughty	0.84 0.71
VTD: Valentine-----	65	Very limited Too sandy	1.00	Somewhat limited Slope Droughty	0.84 0.71
Thurman-----	35	Somewhat limited Too sandy	0.87	Somewhat limited Droughty Slope	0.24 0.04
W: Water-----	100	Not rated		Not rated	

RECREATIONAL INTERPRETATIONS--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value

WILDLIFE INTERPRETATIONS
Howard County, Nebraska

Use and Explanation of Wildlife Interpretations

Soils directly affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the development of water impoundments. The kind and abundance of wildlife that populate an area depend largely on the amount and distribution of food, cover, water, and living space. If any one of these elements is missing, inadequate, or inaccessible, wildlife will be scarce or will not inhabit the area. If the soils have the potential, wildlife habitat can be created or improved by planting appropriate vegetation, properly managing the existing plant cover, and fostering the natural establishment of desirable plants.

In the Wildlife Interpretations table, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

Suitability Ratings

The potential of the soil is rated good, fair, poor, or very poor.

Good - means that the element of wildlife habitat or the kind of habitat is easily created, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected if the soil is used for the designated purpose.

Fair - means that the element of wildlife habitat or kind of habitat can be created, improved, or maintained in most places. Moderately intensive management is required for satisfactory results.

Poor - means that limitations are severe for the designated element or kind of wildlife habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and requires intensive effort.

Very Poor - means that limitations are very severe for the designated element or kind of wildlife habitat. Habitat is difficult to create, improve, or maintain in most places, and management is difficult and requires intensive effort.

Description of Wildlife Habitat Elements

Openland habitat consists of croplands, pastures, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The kind of wildlife attracted to these areas include bobwhite quail, pheasant, meadowlark, field sparrow, killdeer, cottontail rabbit, red fox, and coyote.

Woodland habitat consists of hardwood or conifers, or a mixture of these and associated grasses, legumes and wild herbaceous plants. Examples of wildlife attracted to this habitat are wild turkey, thrushes, woodpeckers, owl, tree squirrels, raccoon, and deer.

Wetland habitat consists of water-tolerant plants in open, marshy or swampy, shallow water areas. Examples of wildlife attracted to this habitat are ducks, geese, herons, bitterns, rails, kingfishers, shorebirds, muskrat, mink, and beaver.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture also are considerations. Examples of grasses and legumes are fescue, lovegrass, bromegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of wild herbaceous plants are bluestem, goldenrod, beggarweed, wheatgrass, and grama.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, apple, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated good are Russian-olive, autumn-olive, and crabapple.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, fir, cedar, and juniper.

Shrubs are bushy woody plants that produce fruit, buds, twigs, bark, and foliage. Soil properties and features that affect the growth of shrubs are depth of the root zone, available water capacity, salinity, and soil moisture. Examples of shrubs are fragrant sumac, chokecherry, American plum, sand plum, and gorden currant.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, saltgrass, cordgrass, rushes, sedges, and cattails.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include bobwhite quail, pheasant, meadowlark, field sparrow, cottontail, red fox and coyote.

Habitat for woodland wildlife consists of areas of deciduous and/or coniferous plants and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, thrushes, woodpeckers, squirrels, gray fox, raccoon, and deer.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver.

Habitat for rangeland wildlife consists of areas of shrubs and wild herbaceous plants. Wildlife attracted to rangeland include antelope, deer, cottontail rabbit, prairie chicken, meadowlark, quail, and pheasant.

WILDLIFE INTERPRETATIONS
Howard County, Nebraska

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
2Hb: HOBBS-----	Good	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor	Good
2ThA: THURMAN-----	Fair	Good	Good	Fair	Fair	Good	Very poor	Very poor	Good	Fair	Very poor	Good
2To: ALMERIA-----	Poor	Fair	Fair	Poor	Poor	Fair	Good	Good	Poor	Poor	Good	Fair
AED: ARENTS, EARTHEN DAM-----	---	---	---	---	---	---	---	---	---	---	---	---
B: PSAMMENTS-----	Poor	Fair	Fair	Poor	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor	Fair
Boa: BOEL-----	Fair	Fair	Good	Good	Good	Good	Fair	Fair	Fair	Good	Poor	Fair
Bob: BOEL-----	Fair	Fair	Good	Good	Good	Good	Fair	Fair	Fair	Good	Poor	Fair
Boc: BOEL-----	Fair	Fair	Good	Good	Good	Good	Fair	Fair	Fair	Good	Poor	Fair
CbC: COLY-----	Fair	Good	Good	Good	Fair	Fair	Very poor	Very poor	Fair	Good	Very poor	Fair
CbD: COLY-----	Poor	Fair	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
CUD: COLY-----	Poor	Fair	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
ULY-----	Poor	Fair	Good	Good	Fair	Fair	Very poor	Very poor	Poor	Good	Very poor	Fair
Da: DARR-----	Fair	Fair	Good	---	Fair	Good	Very poor	Very poor	Fair	---	Very poor	Good
Db: DARR-----	Fair	Fair	Good	---	Fair	Good	Very poor	Very poor	Fair	---	Very poor	Good
De: DETROIT-----	Good	Good	Good	---	---	Good	Good	Good	Good	---	Good	Good
Ea: ELSMERE-----	Poor	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Poor	Fair	Fair	Fair
Gg: GIBBON-----	Good	Good	Good	Good	Fair	Good	Fair	Good	Good	Good	Fair	Good
GIBBON-----	Good	Good	Good	Good	Fair	Good	Fair	Good	Good	Good	Fair	Good
Gk: GRIGSTON-----	Good	Good	Good	---	---	Fair	Poor	Fair	Good	---	Poor	Fair
GP: PITS-----	Very poor	Very poor	Poor	Poor	Poor	Poor	Very poor	Fair	Very poor	Very poor	Poor	Poor
GsC3: NUCKOLLS VARIANT	Fair	Good	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Good	Very poor	Fair
GsD3: NUCKOLLS VARIANT	Fair	Good	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Good	Very poor	Fair
Ha: HALL-----	Good	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
Hb: HORD-----	Good	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good

WILDLIFE INTERPRETATIONS--Continued
Howard County, Nebraska

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
HbA: HORD-----	Good	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
HbB: HORD-----	Fair	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
Hd: HORD-----	Good	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
Hg: HOLDREGE-----	Good	Good	Fair	Good	Fair	Fair	Very poor	Very poor	Good	Good	Very poor	Fair
HgA: HOLDREGE-----	Good	Good	Fair	Good	Fair	Fair	Very poor	Very poor	Good	Good	Very poor	Fair
HgB2: HOLDREGE-----	Fair	Good	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Good	Very poor	Fair
HgC: HOLDREGE-----	Fair	Good	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Good	Very poor	Fair
HpC2: HOLDREGE-----	Fair	Good	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Good	Very poor	Fair
HpC3: HOLDREGE VARIANT	Fair	Good	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Good	Very poor	Fair
Hs: HARNEY-----	Good	Good	Good	Poor	Poor	Good	Poor	Fair	Good	---	Poor	Good
Ia: INAVAL-----	Fair	Fair	Good	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Good
If: INAVAL-----	Poor	Fair	Good	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
Ig: INAVAL-----	Fair	Fair	Good	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Good
In: INAVAL-----	Fair	Fair	Good	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Good
INT: AQUOLLS-----	---	---	---	---	---	---	---	---	---	---	---	---
Ks: KENESAW-----	Good	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
KsB: KENESAW-----	Good	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
KsC: KENESAW-----	Fair	Good	Good	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor	Good
KSz: KENESAW-----	Good	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
COZAD-----	Fair	Fair	Fair	---	Fair	Fair	Very poor	Very poor	Fair	---	Very poor	Fair
L: LORETTO-----	Good	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
La: LAMO-----	Good	Good	Good	Good	Good	Good	Fair	Fair	Good	Fair	Fair	Good

WILDLIFE INTERPRETATIONS--Continued
Howard County, Nebraska

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
LB: LIBORY-----	Fair	Fair	Good	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor	Good
BOELUS-----	Fair	Fair	Good	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor	Good
LC: LIBORY-----	Fair	Fair	Good	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor	Good
BOELUS-----	Fair	Fair	Good	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor	Good
M: FLUVAQUENTS----	Very poor	Very poor	Poor	Very poor	Very poor	Very poor	Good	Good	Very poor	Very poor	Good	Very poor
M-W: MISCELLANEOUS WATER-----	---	---	---	---	---	---	---	---	---	---	---	---
NsD3: NUCKOLLS VARIANT	Fair	Good	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Good	Very poor	Fair
Oa: OVINA-----	Fair	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair	Good
ObB: ORTELO-----	Fair	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor	Good
Oe: ORD-----	Good	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair	Good
Of: ORD-----	Good	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair	Good
Ok: O'NEILL-----	Good	Good	Good	Fair	Fair	Fair	Very poor	Very poor	Good	Fair	Very poor	Fair
OrA: ORTELO-----	Good	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
Ot: ORTELO-----	Good	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
OtB: ORTELO-----	Good	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
OxD: ORTELO-----	Poor	Good	Good	Poor	Poor	Good	Very poor	Very poor	Fair	Poor	Very poor	Good
COLY-----	Poor	Fair	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
RB: COLY-----	Very poor	Very poor	Poor	Poor	Poor	Fair	Very poor	Very poor	Poor	Poor	Very poor	Fair
Ru: RUSCO-----	Good	Good	Poor	Good	Good	Good	Good	Good	Fair	Good	Good	Fair
Sm: SIMEON-----	Poor	Poor	Fair	Poor	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor	Fair
SS: SILVER CREEK----	Fair	Fair	Good	Good	Good	Good	Fair	Fair	Fair	Good	Fair	Good
SLICKSPOTS-----	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Poor
Sy: HOBBS-----	Poor	Fair	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair

WILDLIFE INTERPRETATIONS--Continued
Howard County, Nebraska

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
TfB: THURMAN-----	Fair	Good	Good	Fair	Fair	Good	Very poor	Very poor	Fair	Fair	Very poor	Fair
ThA: THURMAN-----	Fair	Good	Good	Fair	Fair	Good	Very poor	Very poor	Fair	Fair	Very poor	Fair
ThB: THURMAN-----	Fair	Good	Good	Fair	Fair	Good	Very poor	Very poor	Fair	Fair	Very poor	Fair
Ty: ALMERIA-----	Very poor	Poor	Fair	Poor	Poor	Poor	Good	Good	Poor	Poor	Good	Poor
UsC: ULY-----	Fair	Good	Good	Good	Fair	Fair	Very poor	Very poor	Fair	Good	Very poor	Good
UsD: ULY-----	Poor	Fair	Good	Good	Fair	Fair	Very poor	Very poor	Poor	Good	Very poor	Fair
VaC: VALENTINE-----	Poor	Fair	Fair	Poor	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor	Fair
VTD: VALENTINE-----	Poor	Fair	Fair	Poor	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor	Fair
THURMAN-----	Poor	Fair	Good	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
W: WATER-----	---	---	---	---	---	---	---	---	---	---	---	---

YIELDS PER ACRE OF PASTURE AND HAYLAND
Howard County, Nebraska

Use and Explanation of Pastureland and Hayland Interpretations

This subsection provides information concerning the suitability of soils for the production of pasture and hayland. This subsection may contain pasture and hayland suitability groupings, land capability and yield estimates, yield estimates for individual grasses or legumes, or other information pertaining to the production of forage.

Pasture and Hayland Suitability Groupings

Soils are placed in pasture and hayland groups according to their suitability for the production of forage. The soils in each group are enough alike to be suited to the same grasses or legumes, to have similar limitations and hazards, to require similar management, and to have similar productivity and other responses to management. Thus, the pasture and hayland suitability group is a convenient way of grouping the soils for their management. If used, these groupings are identified and described in other reports in the subsection.

Yield Estimates

The average yields per acre that can be expected of the principal pasture or hayland crops, under a high level of management, are presented in this subsection. In any given year, yields may be higher or lower than those indicated in the tables because of variations in rainfall or other climatic factors. The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

Under good management, proper grazing is essential for the production of high quality forage, stand survival, and erosion control. Proper grazing helps plants maintain sufficient and generally vigorous top growth during the growing season. Brush control is essential in many areas, and weed control generally is needed. Rotation grazing and renovation are also important management practices.

The Pasture and Hayland table show yield estimates in tons per acre and animal unit months for pasture and hayland groups. An animal unit month is the amount of forage required by one animal unit (AU) for 30 days. On animal unit (AU) is one (1000 pound) mature cow and a calf up to weaning age (usually six months of age) or their equivalent. The Natural Resources Conservation Service uses 900 pounds of air dry forage as the amount needed to meet this requirement. To maintain a healthy and vigorous plant community, the degree of use should never be greater than 50 percent. Therefore only 25 percent of the total biomass grown is considered consumed by the grazing animal. Animal Unit Months can be converted to air dry pounds per acre production by multiplying the AUM by 30 days, then by 30 pounds per day, and then by four. This figure is the amount of total forage production.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil in the Nontechnical Description section. Specific information on plants and yields can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

(Yields in the "N" columns are for nonirrigated soils; those in the "I" columns are for irrigated soils. Yields are those that can be expected under a high level of nonirrigated and irrigated management by component. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)
Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

Map symbol and soil name	Land capability		Alfalfa hay	
	N	I	N	I
			Tons	Tons
2Hb: Hobbs-----	2w	2w	3.30	6.40
2ThA: Thurman-----	3e	3e	3.30	5.00
2To: Almeria-----	5w	---	---	---
AED: Arents, Earthen Dam-----	8	---	---	---
B: Psamments-----	7e	---	---	---
Boa: Boel-----	4w	4w	2.60	3.80
Bob: Boel-----	3w	3w	2.70	4.00
Boc: Boel-----	3w	3w	2.80	4.20
CbC: Coly-----	4e	4e	2.30	---
CbD: Coly-----	6e	---	---	---
CUD: Coly-----	6e	---	---	---
Uly-----	6e	---	---	---
Da: Darr-----	2e	2e	2.50	5.10
Db: Darr-----	2s	2s	2.70	5.20
De: Detroit-----	2c	1	3.00	5.60
Ea: Elsmere-----	3w	3w	2.60	4.00
Gg: Gibbon-----	2w	2w	3.50	5.50
Gibbon-----	2w	2w	3.50	5.50
Gk: Grigston-----	1	1	3.40	6.20
GP: Pits-----	8s	---	---	---
GsC3: Nuckolls Variant-----	4e	4e	2.10	---
GsD3: Nuckolls Variant-----	6e	---	---	---
Ha: Hall-----	2c	1	3.00	6.20
Hb: Hord-----	2c	1	3.30	6.40
HbA: Hord-----	2e	2e	3.10	6.00
HbB: Hord-----	3e	3e	2.80	5.80
Hd: Hord-----	2c	1	3.20	6.40

(Yields in the "N" columns are for nonirrigated soils; those in the "I" columns are for irrigated soils. Yields are those that can be expected under a high level of nonirrigated and irrigated management by component. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)
Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

Map symbol and soil name	Land capability		Alfalfa hay	
	N	I	N	I
			Tons	Tons
Hg: Holdrege-----	2c	1	2.80	6.00
HgA: Holdrege-----	2e	2e	2.70	5.80
HgB2: Holdrege-----	3e	3e	2.60	5.60
HgC: Holdrege-----	4e	4e	2.40	---
HpC2: Holdrege-----	4e	4e	2.40	---
HpC3: Holdrege Variant-----	4e	4e	2.40	---
Hs: Harney-----	2c	1	2.70	5.80
Ia: Inavale-----	2s	2s	1.90	4.00
If: Inavale-----	6e	4e	---	---
Ig: Inavale-----	4e	3e	1.70	3.60
In: Inavale-----	3e	3e	1.80	3.80
INT: Aquolls-----	5w	---	---	---
Ks: Kenesaw-----	2c	1	2.60	5.80
KsB: Kenesaw-----	2e	2e	2.40	5.60
KsC: Kenesaw-----	4e	4e	2.30	---
KSz: Kenesaw-----	2c	1	2.20	5.00
Cozad-----	4s	3s	2.20	5.00
L: Loretto-----	2e	2e	3.80	5.80
La: Lamo-----	2w	2w	3.50	5.50
LB: Libory-----	4e	3e	3.70	5.00
Boelus-----	4e	4e	3.70	5.00
LC: Libory-----	3e	3e	4.00	5.60
Boelus-----	3e	3e	4.00	5.60
M: Fluvaquents-----	8w	---	---	---
M-W: Miscellaneous Water-----	---	---	---	---
NsD3: Nuckolls Variant-----	6e	---	---	---
Oa: Ovina-----	3w	3w	3.30	5.00
ObB: Ortello-----	3e	3e	2.20	4.80

YIELDS PER ACRE OF PASTURE AND HAYLAND--Continued
Howard County, Nebraska

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(Yields in the "N" columns are for nonirrigated soils; those in the "I" columns are for irrigated soils. Yields are those that can be expected under a high level of nonirrigated and irrigated management by component. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)
Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

Map symbol and soil name	Land capability		Alfalfa hay	
	N	I	N	I
			Tons	Tons
Oe: Ord-----	2w	2w	3.30	58.00
Of: Ord-----	2w	2w	3.10	4.90
Ok: O'Neill-----	2c	2s	1.70	5.00
OrA: Ortello-----	2e	2e	2.30	5.20
Ot: Ortello-----	1	1	2.50	5.30
OtB: Ortello-----	2e	3e	2.30	5.00
OxD: Ortello-----	6e	---	---	---
Coly-----	6e	---	---	---
RB: Coly-----	7e	---	---	---
Ru: Rusco-----	2w	2w	2.80	5.40
Sm: Simeon-----	6s	4s	---	---
SS: Silver Creek-----	3w	3w	2.50	5.20
Slickspots-----	4s	4s	2.50	5.20
Sy: Hobbs-----	6w	---	---	---
TfB: Thurman-----	4e	4e	---	---
ThA: Thurman-----	3e	3e	2.10	4.00
ThB: Thurman-----	4e	4e	1.90	3.80
Ty: Almeria-----	5w	---	---	---
UsC: Uly-----	4e	4e	2.40	---
UsD: Uly-----	6e	---	---	---
VaC: Valentine-----	6e	---	---	---
VTD: Valentine-----	6e	---	---	---
Thurman-----	6e	---	---	---
W: Water-----	---	---	---	---

CONSERVATION TREE AND SHRUB MANAGEMENT
Howard County, Nebraska

A Conservation Tree/Shrub Suitability Group (CTSG), formerly Windbreak Suitability Group, is a physiographic unit or area having similar climatic and edaphic characteristics that control the selection and height growth of trees and shrubs.

In this table, the Conservation Tree and Shrub Grouping is expressed as a group index number. The group index for Conservation Tree and Shrub groups (CTSG) are a guide for species best suited for different kinds of soil and for prediction height, growth, and effectiveness. The groupings can be used when selection woody plants for windbreaks, wildlife plantings riparian buffers, reforestation, other environmental plantings, recreation, landscaping, wetland restoration or enhancement and critical area plantings. CTSG's are developed to assure satisfactory species selection and adaptation to specific conditions of soil, climate and physiography. CTSG's are a guide for selection species best suited for different kinds of soil and prediction height growth and effectiveness.

All soil series mapped in the state have been placed in 10 groups of similar soil characteristics. Groups 1, 2, 3, 4, 6, and 9 are further divided into subgroups. In addition, all groups provide information by Major Land Resource Areas.

Each tree or shrub species has certain climatic and physiographic limits. Within these parameters a tree or shrub may be well or poorly suited because of soil characteristics. Each tree or shrub also has definable potentials of height growth depending on the factors just mentioned. Accurate definitions of potential heights are necessary for proper windbreak planning and design.

Windbreaks protect livestock, buildings, roads and yards from wind and snow. They also protect fruit trees and gardens, and they furnish habitat for wildlife. Several rows of low-growing and high-growing broadleaf and coniferous trees and shrubs provide the most protection.

Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil. Field windbreaks protect cropland and crops from wind, help to keep snow on the fields, and provide food and cover for wildlife.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Windbreaks are often planted on land that did not grow trees originally. Knowledge of how trees perform on such land can be gained only by observing and recording their performance where trees have been planted and survived. The problem is compounded by the fact that many favorite windbreak species are not indigenous to the areas in which they are planted.

The Kansas Field Office Technical Guide Notice KS-230, Conservation Tree and Shrub Plantings Suitability Groups shows the adapted species listing for each group index number. Showing the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates are based on measurements and observation of established plantings that have been given adequate care. This information should be used to determine the placement of a windbreak, the area protected and the arrangement of species.

A number of attributes are included in the CTSG species tables for each group number found in this section of the Field Office Technical Guide. These attributes were rated subjectively and assigned a relative value to further assist those unfamiliar with individual species characteristics or desirability for the intended use. Definitions and explanations can be found. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from the local office of the Natural Resources Conservation Service or of the Cooperative Extension Service or from a commercial nursery. See part 537 of the National Forestry Manual for additional information.

In the Tree and Shrub Management table interpretive ratings are given for various aspects of forest and conservation tree and shrub management. Some rating class terms indicate the degree to which the soils are suited to a specified forest management practice. Well suited indicates that the soil has features that are favorable for the specified practice and has no limitations. Good performance can be expected, and little or no maintenance is needed. Moderately well suited indicates that the soil has features that are moderately favorable for the specified practice. One or more soil properties are less than desirable and fair performance can be expected. Some maintenance is needed. Poorly suited indicates that the soil has one or more properties that are unfavorable for the specified practice. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. Unsited indicates that the expected performance of the soil is unacceptable for the specified practice or that extreme measures are needed to overcome the undesirable soil properties.

The paragraphs that follow indicate the soil properties considered in rating the soils for forest and conservation tree and shrub management practices. More detailed information about the criteria used in the ratings is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet. Also, in the Kansas Field Office Technical Guide Notice KS-230, Conservation Tree and Shrub Plantings Suitability Groups.

Ratings in the columns suitability for hand planting and suitability for mechanical planting are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, moderately well suited, poorly suited, or unsited to these methods of planting. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column suitability for mechanical site preparation (surface) are based on slope, depth to a restrictive layer, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsited to this management activity. The part of the soil from the surface to a depth of about 1-foot is considered in the ratings.

Ratings in the column suitability for mechanical site preparation (deep) are based on slope, depth to a restrictive layer, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsited to this management activity. The part of the soil from the surface to a depth of about 3 feet is considered in the ratings.

Ratings in the column potential for seedling mortality are based on flooding, ponding, depth to a water table, content of lime, reaction, salinity, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. The soils are described as having a low, moderate, or high potential for seedling mortality. See the National Forestry Manual, Subpart B for criteria used in rating management concerns. Specific information on plants and yields can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

CONSERVATION TREE AND SHRUB MANAGEMENT
Howard County,
Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. Pines and spruces are prone to disease problems. See text for further explanation of ratings in this table.)

Map symbol and soil name	Wind break Group	Suitability for hand planting	Suitability for mechanical planting	Suitability for mechanical site preparation (surface)	Suitability for mechanical site preparation (deep)	Potential for seedling mortality
		Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
2Hb: Hobbs-----		Well suited	Well suited	Well suited	Well suited	Low
2ThA: Thurman-----		Well suited	Well suited	Well suited	Well suited	Low
2To: Almeria-----		Well suited	Well suited	Well suited	Well suited	High Wetness
AED: Arents, Earthen Dam-		Not rated	Not rated	Not rated	Not rated	Not rated
B: Psammments-----		Moderately suited Sandiness	Moderately suited Slope Sandiness	Well suited	Well suited	Low
Boa: Boel-----		Well suited	Well suited	Well suited	Well suited	Low
Bob: Boel-----		Well suited	Well suited	Well suited	Well suited	Low
Boc: Boel-----		Well suited	Well suited	Well suited	Well suited	Low
CbC: Coly-----		Well suited	Moderately suited Slope	Well suited	Well suited	Moderate Soil reaction
CbD: Coly-----		Well suited	Poorly suited Slope	Poorly suited Slope	Poorly suited Slope	Moderate Soil reaction
CUD: Coly-----		Well suited	Poorly suited Slope	Poorly suited Slope	Poorly suited Slope	Moderate Soil reaction
Uly-----		Well suited	Poorly suited Slope	Poorly suited Slope	Poorly suited Slope	Low
Da: Darr-----		Well suited	Well suited	Well suited	Well suited	Low
Db: Darr-----		Well suited	Well suited	Well suited	Well suited	Low
De: Detroit-----		Poorly suited Stickiness	Poorly suited Stickiness	Poorly suited Stickiness	Well suited	Low
Ea: Elsmere-----		Well suited	Well suited	Well suited	Well suited	Low
Gg: Gibbon-----		Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction
Gibbon-----		Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction
Gk: Grigston-----		Well suited	Well suited	Well suited	Well suited	Low
GP: Pits-----		Not rated	Not rated	Not rated	Not rated	Not rated
GsC3: Nuckolls Variant----		Well suited	Moderately suited Slope	Well suited	Well suited	Low
GsD3: Nuckolls Variant----		Well suited	Moderately suited Slope	Well suited	Well suited	Low
Ha: Hall-----		Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
Hb: Hord-----		Well suited	Well suited	Well suited	Well suited	Low
HbA: Hord-----		Well suited	Well suited	Well suited	Well suited	Low
HbB: Hord-----		Well suited	Well suited	Well suited	Well suited	Low
Hd: Hord-----		Well suited	Well suited	Well suited	Well suited	Low
Hg: Holdrege-----		Well suited	Well suited	Well suited	Well suited	Low
HgA: Holdrege-----		Well suited	Well suited	Well suited	Well suited	Low
HgB2: Holdrege-----		Moderately suited	Moderately suited	Well suited	Well suited	Low

CONSERVATION TREE AND SHRUB MANAGEMENT
Howard County,
Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. Pines and spruces are prone to disease problems. See text for further explanation of ratings in this table.)

Map symbol and soil name	Wind break Group	Suitability for hand planting	Suitability for mechanical planting	Suitability for mechanical site preparation (surface)	Suitability for mechanical site preparation (deep)	Potential for seedling mortality
		Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
HgC: Holdrege-----		Stickiness Moderately suited Stickiness	Stickiness Moderately suited Stickiness Slope	Well suited	Well suited	Low
HpC2: Holdrege-----		Moderately suited Stickiness	Moderately suited Stickiness Slope	Well suited	Well suited	Low
HpC3: Holdrege Variant----		Moderately suited Stickiness	Moderately suited Stickiness Slope	Well suited	Well suited	Low
Hs: Harney-----		Poorly suited Stickiness	Poorly suited Stickiness	Poorly suited Stickiness	Well suited	Low
Ia: Inavale-----		Well suited	Well suited	Well suited	Well suited	Low
If: Inavale-----		Well suited	Well suited	Well suited	Well suited	Low
Ig: Inavale-----		Well suited	Well suited	Well suited	Well suited	Low
In: Inavale-----		Well suited	Well suited	Well suited	Well suited	Low
INT: Aquolls-----		Well suited	Well suited	Well suited	Well suited	High Wetness Soil reaction
Ks: Kenesaw-----		Well suited	Well suited	Well suited	Well suited	Low
KsB: Kenesaw-----		Well suited	Well suited	Well suited	Well suited	Low
KsC: Kenesaw-----		Well suited	Moderately suited Slope	Well suited	Well suited	Low
KSz: Kenesaw-----		Well suited	Well suited	Well suited	Well suited	Low
Cozad-----		Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction Salinity
L: Loretto-----		Well suited	Well suited	Well suited	Well suited	Low
La: Lamo-----		Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction
LB: Libory-----		Well suited	Well suited	Well suited	Well suited	Low
Boelus-----		Well suited	Well suited	Well suited	Well suited	Low
LC: Libory-----		Well suited	Well suited	Well suited	Well suited	Low
Boelus-----		Well suited	Well suited	Well suited	Well suited	Low
M: Fluvaquents-----		Unsuited Wetness	Poorly suited Wetness	Unsuited Wetness	Unsuited Wetness	High Wetness
M-W: Miscellaneous Water-		Not rated	Not rated	Not rated	Not rated	Not rated
NsD3: Nuckolls Variant----		Well suited	Poorly suited Slope	Poorly suited Slope	Poorly suited Slope	Low
Oa: Ovina-----		Well suited	Well suited	Well suited	Well suited	Low
ObB: Ortello-----		Well suited	Well suited	Well suited	Well suited	Low
Oe: Ord-----		Well suited	Well suited	Well suited	Well suited	Moderate Lime Soil reaction
Of: Ord-----		Well suited	Well suited	Well suited	Well suited	Moderate Lime Soil reaction
Ok: O'Neill-----		Well suited	Well suited	Well suited	Well suited	Low
OrA: Ortello-----		Well suited	Well suited	Well suited	Well suited	Low

CONSERVATION TREE AND SHRUB MANAGEMENT
Howard County,
Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. Pines and spruces are prone to disease problems. See text for further explanation of ratings in this table.)

Map symbol and soil name	Wind break Group	Suitability for hand planting	Suitability for mechanical planting	Suitability for mechanical site preparation (surface)	Suitability for mechanical site preparation (deep)	Potential for seedling mortality
		Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
Ot: Ortello-----		Well suited	Well suited	Well suited	Well suited	Low
OtB: Ortello-----		Well suited	Well suited	Well suited	Well suited	Low
OxD: Ortello-----		Well suited	Poorly suited Slope	Poorly suited Slope	Poorly suited Slope	Low
Coly-----		Well suited	Poorly suited Slope	Poorly suited Slope	Poorly suited Slope	Moderate Soil reaction
RB: Coly-----		Moderately suited Slope	Unsuited Slope	Unsuited Slope	Unsuited Slope	Moderate Soil reaction
Ru: Rusco-----		Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
Sm: Simeon-----		Moderately suited Sandiness	Moderately suited Sandiness	Well suited	Well suited	Low
SS: Silver Creek-----		Moderately suited Stickiness	Moderately suited Stickiness	Poorly suited	Well suited	Moderate
Slickspots-----		Moderately suited Stickiness	Moderately suited Stickiness	Stickiness Well suited	Well suited	Salinity High
Sy: Hobbs-----		Well suited	Well suited	Well suited	Well suited	Salinity Soil reaction
TFB: Thurman-----		Well suited	Well suited	Well suited	Well suited	Low
ThA: Thurman-----		Well suited	Well suited	Well suited	Well suited	Low
ThB: Thurman-----		Well suited	Well suited	Well suited	Well suited	Low
Ty: Almeria-----		Moderately suited Sandiness	Moderately suited Sandiness	Well suited	Well suited	High Wetness
UsC: Uly-----		Well suited	Moderately suited Slope	Well suited	Well suited	Low
UsD: Uly-----		Well suited	Moderately suited Slope	Well suited	Well suited	Low
VaC: Valentine-----		Moderately suited Sandiness	Moderately suited Slope Sandiness	Well suited	Well suited	Low
VTD: Valentine-----		Moderately suited Sandiness	Moderately suited Slope Sandiness	Well suited	Well suited	Low
Thurman-----		Well suited	Moderately suited Slope	Well suited	Well suited	Low
W: Water-----		Not rated	Not rated	Not rated	Not rated	Not rated

ENGINEERING INDEX PROPERTIES
Howard County, Nebraska

Engineering Index Properties table gives the engineering classifications and the range of index properties for the layers of each soil in the survey area. Depth to the upper and lower boundaries of each layer is indicated. Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. Loam, for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, gravelly. Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 1998) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 1998). The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection. If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest. The AASHTO classification for soils tested, with group index numbers in parentheses, is given in Engineering Index Properties table.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage. Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and plasticity index (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination. The estimates of particle-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is generally omitted in the table.

ENGINEERING INDEX PROPERTIES--Continued
Howard County, Nebraska

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
2Hb: Hobbs-----	0-5	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	85-100	25-40	5-20
	5-60	Silt loam	CL, CL-ML, MH	A-4, A-6, A-7	0	0	100	100	95-100	80-100	25-55	5-25
2ThA: Thurman-----	0-36	Loamy fine sand	SC-SM, SM	A-2	0	0	100	100	95-100	15-35	15-20	NP-5
	36-60	Fine sand	SM, SC-SM, SP-SM	A-2, A-3	0	0	100	100	90-100	5-35	15-20	NP-5
2To: Almeria-----	0-5	Loam	CL, SC-SM, ML, CL-ML	A-4	0	0	100	100	75-95	45-65	22-30	2-8
	5-60	Stratified sand to fine sandy loam	SP-SM, SM, SC-SM, SP	A-2, A-3, A-4	0	0	90-100	80-100	50-80	0-50	15-20	NP-5
AED: Arents, Earthen Dam-----	---	---	---	---	---	---	---	---	---	---	---	---
B: Psamments-----	0-60	Fine sand	SM, SP, SP-SM	A-2, A-3	0	0	100	100	78-100	2-25	0-20	NP
Boa: Boel-----	0-11	Loamy fine sand	SM, SC-SM, SP	A-2, A-3	0	0	100	95-100	85-95	0-35	10-20	NP-5
	11-80	Fine sand	SP, SM, SC-SM	A-2, A-3	0	0	100	95-100	85-95	0-25	10-20	NP-5
Bob: Boel-----	0-11	Fine sandy loam	SC-SM, SM	A-2, A-4	0	0	100	100	85-95	20-40	15-20	NP-5
	11-80	Fine sand	SM, SC-SM, SP	A-2, A-3	0	0	100	95-100	85-95	0-25	10-20	NP-5
Boc: Boel-----	0-11	Loam	ML	A-4	0	0	100	100	85-100	70-95	24-37	2-10
	11-80	Fine sand	SP, SM, SC-SM	A-2, A-3	0	0	100	95-100	85-95	0-25	10-20	NP-5
CbC: Coly-----	0-5	Silt loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	100	100	85-100	85-100	20-45	2-20
	5-60	Silt loam	ML, CL-ML, CL	A-4, A-6	0	0	100	100	85-100	85-100	20-40	2-15
CbD: Coly-----	0-5	Silt loam	ML, CL, CL-ML	A-4, A-6, A-7	0	0	100	100	85-100	85-100	20-45	2-20
	5-60	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	85-100	85-100	20-40	2-15
CUD: Coly-----	0-5	Silt loam	ML, CL, CL-ML	A-4, A-6, A-7	0	0	100	100	85-100	85-100	20-45	2-20
	5-60	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	85-100	85-100	20-40	2-15
	0-8	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	20-40	2-20
Uly-----	8-13	Silty clay loam	ML, CL	A-4, A-6	0	0	100	100	100	95-100	25-40	3-15
	13-60	Silt loam	ML, CL	A-4, A-6	0	0	100	100	100	95-100	25-40	3-15
Da: Darr-----	0-12	Fine sandy loam	SM, SC-SM	A-4	0	0	100	100	70-85	40-50	20-30	2-7
	12-26	Sandy loam	SM	A-2, A-4	0	0	100	100	65-85	30-50	20-30	NP-10
	26-60	Coarse sand	SM, SP-SM	A-1	0	0	65-85	50-85	25-35	10-25	10-20	NP-5
Db: Darr-----	0-12	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	25-35	2-7
	12-26	Sandy loam	SM	A-2, A-4	0	0	100	100	65-85	30-50	20-30	NP-10
	26-60	Coarse sand	SM, SP-SM	A-1	0	0	65-85	50-85	25-35	10-25	10-20	NP-5
De: Detroit-----	0-5	Silt loam	CL	A-6	0	0	100	100	95-100	85-95	35-40	15-25
	5-52	Silty clay	CH	A-7	0	0	100	100	95-100	90-100	50-60	30-40
	52-60	Silt loam	CL	A-6, A-7	0	0	100	100	95-100	85-100	35-50	15-30
Ea: Elsmere-----	0-11	Loamy fine sand	SM, SP-SM	A-2, A-3	0	0	100	100	70-100	5-35	10-20	NP-5
	11-17	Loamy sand	SM, SP-SM	A-2, A-3	0	0	100	100	60-100	5-30	5-15	NP-5
	17-60	Sand	SM, SP-SM	A-2, A-3	0	0	100	100	60-100	5-30	5-15	NP-5
Gg: Gibbon-----	0-8	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	85-100	70-90	20-30	2-10
	8-43	Silt loam	CL	A-6	0	0	100	100	90-100	80-90	25-38	12-20
	43-60	Stratified very fine sandy loam to silt loam	CL, ML, SC, SM	A-4	0	0	100	100	70-95	35-90	15-25	NP-8
Gibbon-----	0-8	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	85-100	70-90	20-30	2-10
	8-43	Silt loam	CL	A-6	0	0	100	100	90-100	80-90	25-38	12-20
	43-60	Stratified very fine sandy loam to silt loam	CL, ML, SC, SM	A-4	0	0	100	100	70-95	35-90	15-25	NP-8
Gk: Grigston-----	0-10	Silt loam	CL	A-6	0	0	100	100	95-100	80-100	30-35	10-15
	10-19	Silty clay loam	CL	A-6	0	0	100	100	95-100	85-100	30-40	10-20
	19-60	Silt loam	CL	A-6	0	0	100	100	85-100	70-100	30-40	10-20
GP: Pits-----	0-60	Gravelly sand	GP-GM, SM, SP, SP-SM	A-1, A-2, A-3	---	0-5	45-100	40-100	0-80	0-40	0-14	NP
GsC3: Nuckolls Varian	0-5	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	85-100	30-50	10-25
	5-17	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	85-100	28-48	10-25
	17-60	Silty clay loam	CL, CL-ML	A-6, A-4	0	0	100	100	95-100	80-95	25-40	5-20
GsD3: Nuckolls Varian	0-5	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	85-100	30-50	10-25
	5-17	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	85-100	28-48	10-25
	17-60	Silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	80-95	25-40	5-20

ENGINEERING INDEX PROPERTIES--Continued
Howard County, Nebraska

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
					Pct	Pct						
	In											
Ha: Hall-----	0-6	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	95-100	25-40	3-18
	6-29	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-50	15-30
	29-45	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-40	5-20
	45-60	Stratified fine sandy loam to loam	CL, CL-ML, ML	A-4	0	0	100	100	85-100	75-100	20-40	5-20
Hb: Hord-----	0-5	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	85-100	20-35	3-18
	5-25	Silt loam	CL	A-4, A-6	0	0	100	100	98-100	85-100	25-40	8-23
	25-60	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	100	85-100	25-40	6-21
HbA: Hord-----	0-5	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	85-100	20-35	3-18
	5-25	Silt loam	CL	A-4, A-6	0	0	100	100	98-100	85-100	25-40	8-23
	25-60	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	100	85-100	25-40	6-21
HbB: Hord-----	0-5	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	85-100	20-35	3-18
	5-25	Silt loam	CL	A-4, A-6	0	0	100	100	98-100	85-100	25-40	8-23
	25-60	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	100	85-100	25-40	6-21
Hd: Hord-----	0-20	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	85-100	20-35	3-18
	20-39	Silty clay loam	CL	A-4, A-6	0	0	100	100	98-100	85-100	25-40	8-23
	39-60	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	100	85-100	25-40	6-21
Hg: Holdrege-----	0-13	Silt loam	CL, ML, CL-ML	A-4, A-6, A-7	0	0	100	100	95-100	85-100	20-45	2-20
	13-39	Silty clay loam	CL, CH	A-6, A-7	0	0	100	100	98-100	90-100	30-55	15-35
	39-60	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	30-40	5-15
HgA: Holdrege-----	0-13	Silt loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	100	100	95-100	85-100	20-45	2-20
	13-39	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	98-100	90-100	30-55	15-35
	39-60	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	30-40	5-15
HgB2: Holdrege-----	0-9	Silt loam	CL-ML, ML, CL	A-4, A-6, A-7	0	0	100	100	95-100	85-100	20-45	2-20
	9-35	Silty clay loam	CL, CH	A-6, A-7	0	0	100	100	98-100	90-100	30-55	15-35
	35-60	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	30-40	5-15
HgC: Holdrege-----	0-11	Silt loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	100	100	95-100	85-100	20-45	2-20
	11-37	Silty clay loam	CL, CH	A-6, A-7	0	0	100	100	98-100	90-100	30-55	15-35
	37-60	Silt loam	ML, CL	A-4, A-6	0	0	100	100	95-100	90-100	30-40	5-15
HpC2: Holdrege-----	0-7	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	85-100	30-50	15-35
	7-32	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	98-100	90-100	30-55	15-35
	32-60	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	30-40	5-15
HpC3: Holdrege Varian	0-5	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	85-100	30-50	15-35
	5-26	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	98-100	90-100	30-55	15-35
	26-60	Silt loam	ML, CL	A-4, A-6	0	0	100	100	95-100	90-100	30-40	5-15
Hs: Harney-----	0-10	Silt loam	CL	A-6, A-7	0	0	100	100	95-100	85-100	35-45	15-25
	10-44	Silty clay loam	CL, CH	A-7	0	0	100	100	95-100	85-100	50-55	30-35
	44-60	Silt loam	CL	A-6, A-7	0	0	100	100	95-100	85-100	40-50	20-30
Ia: Inavale-----	0-8	Loam	CL-ML, ML	A-4	0	0	100	95-100	65-85	50-60	15-20	NP-5
	8-13	Loamy fine sand	SC-SM, SM, SP-SM	A-2, A-3	0	0	100	90-100	65-85	5-30	15-20	NP-5
	13-60		SM, SP-SM, SC-SM	A-2, A-3	0	0	100	100	70-90	5-30	15-20	NP-5
If: Inavale-----	0-8	Fine sand	SC-SM, SM, SP-SM	A-2, A-3	0	0	100	90-100	65-85	5-30	15-25	NP-5
	8-13	Loamy fine sand	SC-SM, SM, SP-SM	A-3, A-2	0	0	100	90-100	65-85	5-30	15-25	NP-5
	13-60	Fine sand	SC-SM, SP-SM, SM	A-2, A-3	0	0	100	100	70-90	5-30	15-25	NP-5
Ig: Inavale-----	0-8	Loamy fine sand	SM, SP-SM, SC-SM	A-2, A-3	0	0	100	100	85-95	5-35	15-25	NP-5
	8-13	Loamy fine sand	SC-SM, SM, SP-SM	A-2, A-3	0	0	100	90-100	65-85	5-30	15-25	NP-5
	13-60	Fine sand	SC-SM, SM, SP-SM	A-2, A-3	0	0	100	100	70-90	5-30	15-25	NP-5
In: Inavale-----	0-8	Fine sandy loam	ML, SC-SM, SM, CL-ML	A-4	0	0	100	95-100	65-85	35-55	15-20	NP-5
	8-13	Loamy fine sand	SM, SC-SM, SP-SM	A-2, A-3	0	0	100	90-100	65-85	5-30	15-20	NP-5
	13-60	Fine sand	SC-SM, SM, SP-SM	A-2, A-3	0	0	100	100	70-90	5-30	15-20	NP-5
INT: Aguolls-----	0-72	Variable			---	---	---	---	---	---	---	---
Ks: Kenesaw-----	0-8	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	85-100	25-35	5-15
	8-46	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	85-100	18-35	2-13
	46-60	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	80-100	20-35	2-12
KsB: Kenesaw-----	0-8	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	85-100	25-35	5-15
	8-46	Silt loam	ML, CL, CL-ML	A-4, A-6	0	0	100	100	90-100	85-100	18-35	2-13
	46-60	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	80-100	20-35	2-12

ENGINEERING INDEX PROPERTIES--Continued
Howard County, Nebraska

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
					Pct	Pct						
KsC: Kenesaw-----	0-8 8-46 46-60	Silt loam Silt loam Silt loam	CL, CL-ML CL, CL-ML, ML CL, CL-ML, ML	A-4, A-6 A-4, A-6 A-4, A-6	0 0 0	0 0 0	100 100 100	100 100 100	95-100 90-100 95-100	85-100 85-100 80-100	25-35 18-35 20-35	5-15 2-13 2-12
KSz: Kenesaw-----	0-8 8-46 46-60	Silt loam Silt loam Silt loam	CL, CL-ML CL, ML, CL-ML CL, CL-ML, ML	A-4, A-6 A-4, A-6 A-4, A-6	0 0 0	0 0 0	100 100 100	100 100 100	95-100 90-100 95-100	85-100 85-100 80-100	25-35 18-35 20-35	5-15 2-13 2-12
Cozad-----	0-5 5-14 14-60	Silt loam Silt loam Silt loam	ML ML ML	A-4, A-6 A-4, A-6 A-4	0 0 0	0 0 0	100 100 100	100 100 100	100 85-100 100	85-100 25-40 85-100	25-40 2-12 2-10	2-12 2-12 2-10
L: Loretto-----	0-18 18-38 38-60	Fine sandy loam Silt loam Silt loam	SM, SC-SM CL CL	A-2, A-4 A-6, A-7 A-4, A-6, A-7	0 0 0	0 0 0	100 100 100	100 100 100	70-100 85-100 80-100	20-40 80-100 80-100	15-25 30-45 30-47	NP-5 11-25 8-25
La: Lamo-----	0-13 13-60	Silt loam Silty clay loam	CH, CL CL, CH	A-4, A-6, A-7 A-6, A-7	0 0	0 0	100 100	100 100	95-100 95-100	80-95 85-95	25-55 30-55	8-25 11-25
LB: Libory-----	0-10 10-15 15-60	Fine sand Loamy sand Silty clay loam	SM, SP-SM SM, SP-SM CL, CL-ML	A-2 A-2 A-4, A-6	0 0 0	0 0 0	100 100 100	100 100 100	55-100 55-80 85-100	10-35 12-35 60-95	10-20 10-20 20-40	NP-5 NP-5 4-24
Boelus-----	0-10 10-19 19-37 37-60	Fine sand Loamy fine sand Silt loam Silt loam	SC-SM, SM, SP-SM SC-SM, SM, SP-SM CL CL	A-2, A-3 A-2 A-4, A-6 A-4, A-6	0 0 0	0 0 0	100 100 100	100 100 100	50-100 50-100 90-100 90-100	5-30 10-35 80-100 80-100	15-20 15-20 30-40 30-40	NP-5 NP-5 8-18 8-18
LC: Libory-----	0-10 10-15 15-60	Loamy fine sand Loamy sand Silty clay loam	SM SM, SP-SM CL, CL-ML	A-2, A-4 A-2 A-4, A-6	0 0 0	0 0 0	100 100 100	100 100 100	65-85 55-80 85-100	15-45 12-35 60-95	10-20 10-20 20-40	NP-5 NP-5 4-24
Boelus-----	0-10 10-19 19-37 37-60	Loamy fine sand Loamy fine sand Silt loam Silt loam	SC-SM, SM, SP-SM SC-SM, SM, SP-SM CL CL	A-2 A-2 A-4, A-6 A-4, A-6	0 0 0	0 0 0	100 100 100	100 100 100	50-100 50-100 90-100 90-100	10-35 10-35 80-100 80-100	15-20 15-20 30-40 30-40	NP-5 NP-5 8-18 8-18
M: Fluvaquents----	0-60	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	85-100	60-95	25-35	5-15
M-W: Miscellaneous Water-----	---	---	---	---	---	---	---	---	---	---	---	---
NsD3: Nuckolls Varian	0-7 7-39 39-60	Silt loam Silty clay loam Silt loam	ML, CL CL CL, CL-ML	A-4, A-6 A-6, A-7 A-4, A-6	0 0 0	0 0 0	100 100 100	100 100 100	95-100 95-100 95-100	90-100 85-100 80-95	24-40 28-48 25-40	2-15 10-25 5-20
Oa: Ovina-----	0-11 11-30 30-40 40-80	Loamy fine sand Fine sandy loam Loam Fine sandy loam	SM ML, SM CL-ML, CL, ML ML, SM	A-2 A-4 A-4 A-4	0 0 0 0	0 0 0 0	100 100 100 100	100 100 100 100	70-90 70-85 85-95 70-85	15-30 40-60 60-80 40-60	10-20 15-30 15-35 15-30	NP-5 NP-10 NP-10 NP-10
ObB: Ortello-----	0-7 7-60	Loamy fine sand Fine sandy loam	SM, SP-SM SM, SC-SM, ML, CL-ML	A-4, A-2, A-3 A-4	0 0	0 0	100 100	100 100	90-100 70-85	5-40 35-55	15-20 15-25	NP-5 NP-5
Oe: Ord-----	0-14 14-26 26-60	Loam Sandy loam Stratified sand to loamy fine sand	ML SM, ML SP-SM, SM, SC-SM	A-4 A-2, A-4 A-2, A-3	0 0 0	0 0 0	100 95-100 95-100	100 95-100 95-100	95-100 70-100 50-100	95-100 30-85 5-30	25-35 20-35 15-20	2-8 NP-10 NP-5
Of: Ord-----	0-14 14-26 26-60	Fine sandy loam Sandy loam Stratified sand to loamy fine sand	ML, SM ML, SM SC-SM, SM, SP-SM	A-2, A-4 A-2, A-4 A-2, A-3	0 0 0	0 0 0	95-100 95-100 95-100	95-100 95-100 95-100	70-98 70-100 50-100	30-90 30-85 5-30	20-35 20-35 15-20	NP-10 NP-10 NP-5
Ok: O'neill-----	0-14 14-20 20-60	Loam Fine sandy loam Gravelly sand	ML, CL-ML, CL SC-SM, SC SP-SM, SP	A-4, A-6 A-2, A-4 A-1, A-2, A-3	0 0 0	0 0 0	95-100 95-100 70-100	95-100 95-100 50-90	85-95 60-75 25-60	60-70 30-50 0-5	20-35 15-30 10-20	3-12 NP-10 NP-5
OrA: Ortello-----	0-15 15-25 25-60	Fine sandy loam Fine sandy loam Loamy fine sand	SM, ML SM, ML SP-SM, SM	A-4 A-4 A-2, A-3	0 0 0	0 0 0	100 100 100	100 100 100	70-95 70-95 50-70	40-55 40-55 5-35	15-20 15-20 ---	NP-5 NP-5 NP
Ot: Ortello-----	0-7 7-25 25-60	Loam Fine sandy loam Loamy fine sand	CL-ML, CL, ML ML, SM SM, SP-SM	A-4 A-4 A-2, A-3	0 0 0	0 0 0	100 100 100	100 100 100	90-100 70-95 50-70	60-80 40-55 5-35	20-35 15-20 ---	2-10 NP-5 NP
OtB: Ortello-----	0-7 7-25 25-60	Loam Fine sandy loam Loamy fine sand	CL, CL-ML, ML SM, ML SP-SM, SM	A-4 A-4 A-2, A-3	0 0 0	0 0 0	100 100 100	100 100 100	90-100 70-95 50-70	60-80 40-55 5-35	20-35 15-20 ---	2-10 NP-5 NP

ENGINEERING INDEX PROPERTIES--Continued
Howard County, Nebraska

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
					Pct	Pct					Pct	
OxD:	In											
Ortello-----	0-7	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-95	40-55	15-20	NP-5
	7-60	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-95	40-55	15-20	NP-5
Coly-----	0-5	Silt loam	ML, CL-ML, CL	A-4, A-6, A-7	0	0	100	100	85-100	85-100	20-45	2-20
	5-60	Silt loam	CL, ML, CL-ML	A-4, A-6	0	0	100	100	85-100	85-100	20-40	2-15
RB:												
Coly-----	0-3	Silt loam	ML, CL-ML, CL	A-4, A-6, A-7	0	0	100	100	85-100	85-100	20-45	2-20
	3-60	Silt loam	ML, CL-ML, CL	A-4, A-6	0	0	100	100	85-100	85-100	20-40	2-15
Ru:												
Rusco-----	0-7	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	95-100	85-100	60-100	20-40	3-15
	7-26	Silty clay loam	CL	A-6, A-7	0	0	100	100	90-100	85-100	30-45	15-30
	26-60	Silt loam	ML, CL, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100	70-100	20-35	3-15
Sm:												
Simeon-----	0-8	Loamy sand	SM, SP-SM	A-2, A-3	0	0	95-100	90-100	51-95	5-35	10-20	NP-5
	8-80	Sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0	90-100	80-100	35-95	0-30	10-20	NP-5
SS:												
Silver Creek---	0-8	Silt loam	CL	A-4, A-6	0	0	100	100	95-100	95-100	25-40	7-15
	8-28	Silty clay loam	CH, CL	A-7	0	0	100	100	95-100	95-100	40-60	25-35
	28-60	Silt loam	CL	A-4, A-6	0	0	100	100	95-100	95-100	25-40	7-15
Slickspots-----	0-5	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	85-100	25-40	3-15
	5-30	Silty clay loam	CL, CH	A-6, A-7	0	0	100	100	100	95-100	35-60	15-35
	30-60	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	100	95-100	30-55	12-30
Sy:												
Hobbs-----	0-20	Silt loam	CL, CL-ML	A-6, A-4	0	0	100	100	95-100	85-100	25-40	5-20
	20-60	Stratified silt loam	CL, CL-ML	A-6, A-4	0	0	100	100	95-100	85-100	25-40	5-20
TfB:												
Thurman-----	0-10	Fine sand	SP-SM, SM	A-2, A-3	0	0	100	100	50-95	5-35	15-20	NP-5
	10-32	Loamy fine sand	SP-SM, SM	A-4, A-2, A-3	0	0	100	100	90-100	5-40	15-20	NP-5
	32-80	Fine sand	SP-SM, SM	A-2, A-3	0	0	100	100	50-95	5-35	15-20	NP-5
ThA:												
Thurman-----	0-10	Loamy fine sand	SM, SP-SM	A-2, A-3, A-4	0	0	100	100	90-100	5-40	15-20	NP-5
	10-14	Loamy fine sand	SP-SM, SM	A-2, A-3, A-4	0	0	100	100	90-100	5-40	15-20	NP-5
	14-60	Fine sand	SM, SP-SM	A-2, A-3	0	0	100	100	50-95	5-35	15-20	NP-5
ThB:												
Thurman-----	0-10	Loamy fine sand	SM, SP-SM	A-2, A-3, A-4	0	0	100	100	90-100	5-40	15-20	NP-5
	10-14	Loamy fine sand	SM, SP-SM	A-4, A-3, A-2	0	0	100	100	90-100	5-40	15-20	NP-5
	14-60	Fine sand	SM, SP-SM	A-3, A-2	0	0	100	100	50-95	5-35	15-20	NP-5
Ty:												
Almeria-----	0-5	Loam	ML, CL, CL-ML	A-4	0	0	100	100	75-95	45-65	22-30	2-8
	5-60	Stratified sand to fine sandy loam	SC-SM, SP-SM, SM, SP	A-3, A-2	0	0	95-100	90-100	50-75	0-30	15-20	NP-5
UsC:												
Uly-----	0-8	Silt loam	ML, CL	A-4, A-6	0	0	100	100	100	95-100	20-40	2-20
	8-19	Silt loam	ML, CL	A-6, A-4	0	0	100	100	100	95-100	25-40	3-15
	19-60	Silt loam	CL, ML	A-6, A-4	0	0	100	100	100	95-100	25-40	3-15
UsD:												
Uly-----	0-8	Silt loam	ML, CL	A-6, A-4	0	0	100	100	100	95-100	20-40	2-20
	8-19	Silt loam	ML, CL	A-4, A-6	0	0	100	100	100	95-100	25-40	3-15
	19-60	Silt loam	CL, ML	A-4, A-6	0	0	100	100	100	95-100	25-40	3-15
VaC:												
Valentine-----	0-4	Fine sand	SP-SM, SP, SM	A-2, A-3	0	0	100	100	70-100	2-25	15-20	NP-5
	4-11	Loamy sand	SM, SP, SP-SM	A-2, A-3	0	0	100	100	90-100	2-35	15-20	NP-5
	11-60	Fine sand	SP, SP-SM, SM	A-2, A-3	0	0	100	100	70-100	2-25	15-20	NP-5
VTD:												
Valentine-----	0-4	Fine sand	SM, SP, SP-SM	A-3, A-2	0	0	100	100	70-100	2-25	15-20	NP-5
	4-11	Loamy sand	SM, SP, SP-SM	A-2, A-3	0	0	100	100	90-100	2-35	15-20	NP-5
	11-60	Fine sand	SP-SM, SM, SP	A-2, A-3	0	0	100	100	70-100	2-25	15-20	NP-5
Thurman-----	0-10	Loamy fine sand	SP-SM, SM	A-4, A-3, A-2	0	0	100	100	90-100	5-40	15-20	NP-5
	10-14	Loamy fine sand	SM, SP-SM	A-4, A-3, A-2	0	0	100	100	90-100	5-40	15-20	NP-5
	14-60	Fine sand	SM, SP-SM	A-2, A-3	0	0	100	100	50-95	5-35	15-20	NP-5
W:												
Water-----	---	---	---	---	---	---	---	---	---	---	---	---

PHYSICAL PROPERTIES OF THE SOILS
Howard County, Nebraska: Out-of-date

Physical Properties

This table shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In this table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In this table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3- or 1/10-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (K-sat). The estimates in the table indicate the rate of water movement, in micrometers per second (um/sec), when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In this table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in this table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are as follows:

1. Coarse sands, sands, fine sands, and very fine sands.

PHYSICAL PROPERTIES OF THE SOILS
Howard County, Nebraska: Out-of-date

(Single entries under "Sand and Silt" are a representative percentage are calculated using an algorithm. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										K	Kf	T		
	In	Pct	Pct	Pct	g/cc	in/hr	In/in	Pct	Pct					

2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.

3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.

4L. Calcareous loams, silt loams, clay loams, and silty clay loams.

4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.

5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material.

6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay.

7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material.

8. Soils that are not subject to wind erosion because of coarse fragments on the surface or because of surface wetness.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

PHYSICAL PROPERTIES OF THE SOILS
Howard County, Nebraska: Out-of-date

(Single entries under "Sand and Silt" are a representative percentage are calculated using an algorithm. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										K	Kf	T		
2Hb: Hobbs-----	0-5 5-60	11 10	68 68	15-27 15-30	1.20-1.40 1.20-1.40	0.60-2.00 0.60-2.00	0.21-0.24 0.18-0.22	0.0-2.9 0.0-2.9	2.0-4.0 0.5-1.0	.32 .43	.32 .43	5	6	48
2ThA: Thurman-----	0-36 36-60	87 92	7 1	3-10 3-10	1.35-1.55 1.55-1.80	5.95-19.98 5.95-19.98	0.10-0.12 0.06-0.11	0.0-2.9 0.0-2.9	1.0-3.0 0.5-1.0	.17 .15	.17 .15	5	2	134
2To: Almeria-----	0-5 5-60	44 80	41 14	12-18 1-10	1.40-1.50 1.55-1.80	0.60-2.00 5.95-19.98	0.20-0.22 0.05-0.12	0.0-2.9 0.0-2.9	1.0-12 0.0-0.5	.32 .15	.32 .17	5	8	0
AED: Arents, Earthen Dam- B:	---	---	---	---	---	---	---	---	---	---	---	-	---	---
Psammments----	0-60	80	15	0-6	1.70-1.90	5.95-19.98	0.05-0.09	0.0-2.9	0.0-0.5	.15	.15	5	1	310
Boa: Boel-----	0-11 11-80	80 96	14 1	2-10 0-6	1.60-1.80 1.50-1.60	5.95-19.98 5.95-19.98	0.10-0.12 0.05-0.10	0.0-2.9 0.0-2.9	1.0-2.0 0.0-0.5	.17 .20	.17 .20	5	2	134
Bob: Boel-----	0-11 11-80	65 96	22 1	8-18 0-6	1.50-1.70 1.50-1.60	2.00-6.00 5.95-19.98	0.16-0.18 0.05-0.10	0.0-2.9 0.0-2.9	1.0-2.0 0.0-0.5	.20 .20	.20 .20	3	3	86
Boc: Boel-----	0-11 11-80	40 96	40 1	15-25 0-6	1.30-1.40 1.50-1.60	0.60-2.00 5.95-19.98	0.20-0.24 0.05-0.10	0.0-2.9 0.0-2.9	1.0-3.0 0.0-0.5	.28 .20	.28 .20	3	4L	86
CbC: Coly-----	0-5 5-60	8 8	71 71	18-24 18-24	1.30-1.50 1.30-1.50	0.60-2.00 0.60-2.00	0.20-0.24 0.17-0.22	0.0-2.9 0.0-2.9	1.0-2.0 0.5-1.0	.43 .43	.43 .43	5	4L	86
CbD: Coly-----	0-5 5-60	8 8	71 71	18-24 18-24	1.30-1.50 1.30-1.50	0.60-2.00 0.60-2.00	0.20-0.24 0.17-0.22	0.0-2.9 0.0-2.9	1.0-2.0 0.5-1.0	.43 .43	.43 .43	5	4L	86
CUD: Coly-----	0-5 5-60	8 8	71 71	18-24 18-24	1.30-1.50 1.30-1.50	0.60-2.00 0.60-2.00	0.20-0.24 0.17-0.22	0.0-2.9 0.0-2.9	1.0-2.0 0.5-1.0	.43 .43	.43 .43	5	4L	86
Uly-----	0-8 8-13 13-60	11 9 10	67 63 68	17-27 20-30 18-27	1.20-1.45 1.25-1.45 1.25-1.45	0.60-2.00 0.20-0.60 0.60-2.00	0.20-0.24 0.18-0.22 0.16-0.20	0.0-2.9 3.0-5.9 0.0-2.9	1.0-3.0 0.5-1.0 0.0-0.5	.32 .43 .43	.32 .43 .43	5	6	48
Da: Darr-----	0-12 12-26 26-60	65 65 81	26 26 15	5-12 5-18 1-6	1.40-1.70 1.50-1.70 1.50-1.70	2.00-6.00 2.00-6.00 19.98-19.98	0.16-0.18 0.12-0.17 0.02-0.04	0.0-2.9 0.0-2.9 0.0-2.9	2.0-4.0 0.5-1.0 0.0-0.5	.20 .20 .05	.20 .20 .10	4	3	86
Db: Darr-----	0-12 12-26 26-60	11 63 80	70 26 16	12-25 5-18 1-6	1.40-1.60 1.50-1.70 1.50-1.70	0.60-2.00 2.00-6.00 19.98-19.98	0.22-0.24 0.12-0.17 0.02-0.04	0.0-2.9 0.0-2.9 0.0-2.9	2.0-4.0 0.5-1.0 0.0-0.5	.32 .20 .05	.32 .20 .10	4	5	56
De: Detroit-----	0-5 5-52 52-60	8 12 8	67 48 66	22-27 35-45 18-35	1.25-1.40 1.35-1.50 1.30-1.50	0.20-0.60 0.06-0.20 0.20-0.60	0.22-0.24 0.12-0.18 0.18-0.22	0.0-2.9 6.0-8.9 3.0-5.9	2.0-4.0 1.0-2.0 0.0-0.5	.37 .37 .37	.37 .37 .37	5	6	48
Ea: Elsmere-----	0-11 11-17 17-60	78 81 82	15 15 15	3-10 0-8 0-5	1.55-1.70 1.50-1.60 1.50-1.60	5.95-19.98 5.95-19.98 5.95-19.98	0.10-0.12 0.06-0.11 0.05-0.07	0.0-2.9 0.0-2.9 0.0-2.9	1.0-3.0 0.0-0.5 0.0-0.5	.17 .17 .15	.17 .17 .15	5	2	134
Gg: Gibbon-----	0-8 8-43 43-60	8 8 12	70 68 68	20-25 20-27 15-25	1.40-1.60 1.30-1.50 1.50-1.70	0.60-2.00 0.60-2.00 0.57-5.95	0.21-0.23 0.18-0.22 0.16-0.20	0.0-2.9 3.0-5.9 0.0-2.9	2.0-4.0 0.5-1.0 0.5-1.0	.32 .32 .32	.32 .32 .32	5	4L	86
Gibbon-----	0-8 8-43 43-60	8 8 12	70 68 68	20-25 20-27 15-25	1.40-1.60 1.30-1.50 1.50-1.70	0.60-2.00 0.60-2.00 0.57-5.95	0.21-0.23 0.18-0.22 0.16-0.20	0.0-2.9 3.0-5.9 0.0-2.9	2.0-4.0 0.5-1.0 0.5-1.0	.32 .32 .32	.32 .32 .32	5	6	48
Gk: Grigston-----	0-10 10-19 19-60	6 8 10	70 62 65	21-26 21-30 21-30	1.30-1.40 1.35-1.45 1.30-1.45	0.60-2.00 0.20-0.60 0.60-2.00	0.21-0.24 0.18-0.22 0.16-0.22	0.0-2.9 0.0-2.9 0.0-2.9	2.0-4.0 1.0-2.0 0.0-0.5	.32 .32 .32	.32 .32 .32	5	6	48
GP: Pits-----	0-60	95	1	0-8	1.70-2.00	6.00-20.00	0.02-0.09	0.0-2.9	0.0-0.5	.10	.17	2	8	0
GsC3: Nuckolls Variant-----	0-5 5-17 17-60	8 6 6	60 66 66	27-32 20-32 20-32	1.15-1.25 1.20-1.40 1.20-1.30	0.20-0.60 0.20-0.60 0.20-0.60	0.21-0.23 0.18-0.20 0.17-0.20	3.0-5.9 3.0-5.9 3.0-5.9	0.5-2.0 0.0-0.5 0.0-0.5	.37 .43 .43	.37 .43 .43	5	7	38
GsD3: Nuckolls Variant-----	0-5 5-17 17-60	10 6 6	60 66 66	27-32 20-32 20-32	1.15-1.25 1.20-1.40 1.20-1.30	0.20-0.60 0.20-0.60 0.20-0.60	0.21-0.23 0.18-0.20 0.17-0.20	3.0-5.9 3.0-5.9 3.0-5.9	0.5-2.0 0.0-0.5 0.0-0.5	.37 .43 .43	.37 .43 .43	5	7	38
Ha: Hall-----	0-6 6-29 29-45 45-60	8 8 8 40	70 60 70 40	15-27 20-35 15-30 12-30	1.30-1.40 1.30-1.50 1.30-1.40 1.40-1.60	0.60-2.00 0.20-0.60 0.60-2.00 0.60-2.00	0.20-0.24 0.18-0.20 0.18-0.22 0.14-0.20	3.0-5.9 3.0-5.9 3.0-5.9 0.0-2.9	2.0-4.0 1.0-2.0 0.5-1.0 0.0-0.5	.32 .43 .43 .43	.32 .43 .43 .43	5	6	48
Hb: Hord-----	0-5 5-25 25-60	8 8 8	70 68 68	17-27 20-35 18-30	1.30-1.40 1.35-1.45 1.30-1.50	0.60-2.00 0.60-2.00 0.60-2.00	0.20-0.24 0.17-0.22 0.17-0.22	0.0-2.9 0.0-2.9 0.0-2.9	2.0-4.0 0.5-1.0 0.0-0.5	.32 .43 .43	.32 .43 .43	5	6	48

PHYSICAL PROPERTIES OF THE SOILS
Howard County, Nebraska: Out-of-date

(Single entries under "Sand and Silt" are a representative percentage are calculated using an algorithm. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										K	Kf	T		
HbA:														
Hord-----	0-5	8	70	17-27	1.30-1.40	0.60-2.00	0.20-0.24	0.0-2.9	2.0-4.0	.32	.32	5	6	48
	5-25	8	68	20-35	1.35-1.45	0.60-2.00	0.17-0.22	0.0-2.9	0.5-1.0	.43	.43			
	25-60	8	68	18-30	1.30-1.50	0.60-2.00	0.17-0.22	0.0-2.9	0.0-0.5	.43	.43			
HbB:														
Hord-----	0-5	8	70	17-27	1.30-1.40	0.60-2.00	0.20-0.24	0.0-2.9	2.0-4.0	.32	.32	5	6	48
	5-25	8	68	20-35	1.35-1.45	0.60-2.00	0.17-0.22	0.0-2.9	0.5-1.0	.43	.43			
	25-60	8	68	18-30	1.30-1.50	0.60-2.00	0.17-0.22	0.0-2.9	0.0-0.5	.43	.43			
Hd:														
Hord-----	0-20	8	70	17-27	1.30-1.40	0.60-2.00	0.20-0.24	0.0-2.9	2.0-4.0	.32	.32	5	6	48
	20-39	8	68	20-35	1.35-1.45	0.60-2.00	0.17-0.22	0.0-2.9	0.5-1.0	.43	.43			
	39-60	8	68	18-30	1.30-1.50	0.60-2.00	0.17-0.22	0.0-2.9	0.0-0.5	.43	.43			
Hg:														
Holdrege-----	0-13	8	68	20-27	1.40-1.60	0.60-2.00	0.22-0.24	3.0-5.9	2.0-4.0	.32	.32	5	6	48
	13-39	8	60	28-35	1.20-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.5-2.0	.43	.43			
	39-60	8	72	15-20	1.40-1.60	0.60-2.00	0.20-0.22	3.0-5.9	0.0-0.5	.43	.43			
HgA:														
Holdrege-----	0-13	8	68	20-27	1.40-1.60	0.60-2.00	0.22-0.24	3.0-5.9	2.0-4.0	.32	.32	5	6	48
	13-39	8	60	28-35	1.20-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.5-2.0	.43	.43			
	39-60	8	72	15-20	1.40-1.60	0.60-2.00	0.20-0.22	3.0-5.9	0.0-0.5	.43	.43			
HgB2:														
Holdrege-----	0-9	8	68	20-27	1.40-1.60	0.60-2.00	0.22-0.24	3.0-5.9	2.0-4.0	.32	.32	5	6	48
	9-35	8	60	28-35	1.20-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.5-2.0	.43	.43			
	35-60	8	72	15-20	1.40-1.60	0.60-2.00	0.20-0.22	3.0-5.9	0.0-0.5	.43	.43			
HgC:														
Holdrege-----	0-11	8	68	20-27	1.40-1.60	0.60-2.00	0.22-0.24	3.0-5.9	2.0-4.0	.32	.32	5	6	48
	11-37	8	60	28-35	1.20-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.5-2.0	.43	.43			
	37-60	8	72	15-20	1.40-1.60	0.60-2.00	0.20-0.22	3.0-5.9	0.0-0.5	.43	.43			
HpC2:														
Holdrege-----	0-7	8	60	28-35	1.40-1.60	0.20-0.60	0.21-0.23	3.0-5.9	2.0-4.0	.32	.32	5	7	38
	7-32	8	60	28-35	1.20-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.5-2.0	.43	.43			
	32-60	8	72	15-20	1.40-1.60	0.60-2.00	0.20-0.22	3.0-5.9	0.0-0.5	.43	.43			
HpC3:														
Holdrege Variant-----	0-5	8	60	28-35	1.40-1.60	0.20-0.60	0.21-0.23	3.0-5.9	0.5-2.0	.37	.37	5	7	38
	5-26	8	60	28-35	1.20-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.5-1.0	.43	.43			
	26-60	8	72	20-27	1.40-1.60	0.60-2.00	0.20-0.22	3.0-5.9	0.0-0.5	.43	.43			
Hs:														
Harney-----	0-10	8	67	22-27	1.30-1.40	0.60-2.00	0.22-0.24	0.0-2.9	2.0-4.0	.32	.32	5	6	48
	10-44	8	54	35-42	1.35-1.50	0.06-0.20	0.12-0.19	3.0-5.9	1.0-2.0	.43	.43			
	44-60	8	66	24-35	1.20-1.35	0.60-2.00	0.18-0.22	0.0-2.9	0.0-0.5	.43	.43			
Ia:														
Inavale-----	0-8	46	40	7-20	1.40-1.50	2.00-6.00	0.13-0.18	0.0-2.9	0.5-1.0	.32	.32	5	5	56
	8-13	80	13	3-10	1.50-1.60	5.95-19.98	0.06-0.11	0.0-2.9	0.0-0.5	.17	.17			
	13-60	80	13	3-10	1.50-1.60	5.95-19.98	0.05-0.10	0.0-2.9	0.0-0.5	.15	.15			
If:														
Inavale-----	0-8	82	15	1-5	1.50-1.60	5.95-19.98	0.07-0.09	0.0-2.9	0.5-1.0	.15	.15	5	1	220
	8-13	79	15	3-10	1.50-1.60	5.95-19.98	0.06-0.11	0.0-2.9	0.0-0.5	.17	.17			
	13-60	82	15	3-10	1.50-1.60	5.95-19.98	0.05-0.10	0.0-2.9	0.0-0.5	.15	.15			
Ig:														
Inavale-----	0-8	80	13	2-10	1.50-1.60	5.95-19.98	0.10-0.12	0.0-2.9	0.5-1.0	.17	.17	5	2	134
	8-13	80	13	3-10	1.50-1.60	5.95-19.98	0.06-0.11	0.0-2.9	0.0-0.5	.17	.17			
	13-60	80	14	3-10	1.50-1.60	5.95-19.98	0.05-0.10	0.0-2.9	0.0-0.5	.15	.15			
In:														
Inavale-----	0-8	65	24	7-15	1.40-1.50	2.00-6.00	0.13-0.18	0.0-2.9	0.5-1.0	.24	.24	5	3	86
	8-13	80	13	3-10	1.50-1.60	5.95-19.98	0.06-0.11	0.0-2.9	0.0-0.5	.17	.17			
	13-60	80	14	3-10	1.50-1.60	5.95-19.98	0.05-0.10	0.0-2.9	0.0-0.5	.15	.15			
INT:														
Aquolls-----	0-72			---	---	---	---	---	---	---	---	-	---	0
Ks:														
Kenesaw-----	0-8	11	67	18-25	1.20-1.40	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	8-46	14	71	10-20	1.20-1.30	0.60-2.00	0.17-0.22	0.0-2.9	0.5-1.0	.43	.43			
	46-60	14	73	8-18	1.30-1.40	0.60-2.00	0.17-0.22	0.0-2.9	0.0-0.5	.43	.43			
KsB:														
Kenesaw-----	0-8	11	67	18-25	1.20-1.40	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	8-46	14	71	10-20	1.20-1.30	0.60-2.00	0.17-0.22	0.0-2.9	0.5-1.0	.43	.43			
	46-60	14	73	8-18	1.30-1.40	0.60-2.00	0.17-0.22	0.0-2.9	0.0-0.5	.43	.43			
KsC:														
Kenesaw-----	0-8	11	67	18-25	1.20-1.40	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	8-46	14	71	10-20	1.20-1.30	0.60-2.00	0.17-0.22	0.0-2.9	0.5-1.0	.43	.43			
	46-60	14	73	8-18	1.30-1.40	0.60-2.00	0.17-0.22	0.0-2.9	0.0-0.5	.43	.43			
KSz:														
Kenesaw-----	0-8	11	67	18-25	1.20-1.40	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	8-46	14	71	10-20	1.20-1.30	0.60-2.00	0.17-0.22	0.0-2.9	0.5-1.0	.43	.43			
	46-60	14	73	8-18	1.30-1.40	0.60-2.00	0.17-0.22	0.0-2.9	0.0-0.5	.43	.43			
Cozad-----	0-5	11	69	18-22	1.30-1.50	0.60-2.00	0.22-0.24	0.0-2.9	1.0-2.0	.32	.32	5	6	48
	5-14	11	69	18-22	1.30-1.50	0.60-2.00	0.20-0.22	0.0-2.9	0.5-1.0	.37	.37			
	14-60	11	69	18-22	1.30-1.50	0.60-2.00	0.20-0.22	0.0-2.9	0.0-0.5	.37	.37			
L:														
Loretto-----	0-18	67	20	8-18	1.40-1.60	2.00-6.00	0.13-0.18	0.0-2.9	2.0-3.0	.20	.20	5	3	86
	18-38	23	50	20-35	1.30-1.40	0.57-5.95	0.17-0.20	0.0-2.9	1.0-2.0	.37	.37			
	38-60	24	52	18-30	1.40-1.50	0.57-5.95	0.17-0.20	0.0-2.9	0.5-1.0	.37	.37			
La:														
Lamo-----	0-13	9	64	18-35	1.30-1.60	0.60-2.00	0.19-0.23	3.0-5.9	1.0-3.0	.32	.32	5	4L	86
	13-60	9	61	25-35	1.30-1.50	0.60-2.00	0.18-0.22	3.0-5.9	0.5-1.0	.43	.43			

PHYSICAL PROPERTIES OF THE SOILS
Howard County, Nebraska: Out-of-date

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Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										K	Kf	T		
LB: Libory-----	0-10	93	1	2-10	1.50-1.70	5.95-19.98	0.06-0.11	0.0-2.9	1.0-3.0	.15	.15	5	1	160
	10-15	84	9	2-12	1.50-1.70	5.95-19.98	0.06-0.11	0.0-2.9	0.5-1.0	.17	.17			
	15-60	10	60	15-32	1.20-1.40	0.20-0.60	0.17-0.22	0.0-2.9	0.0-0.5	.43	.43			
Boelus-----	0-10	93	1	2-10	1.50-1.70	5.95-19.98	0.08-0.10	0.0-2.9	1.0-3.0	.15	.15	5	1	180
	10-19	86	7	2-12	1.50-1.70	5.95-19.98	0.09-0.11	0.0-2.9	0.5-1.0	.17	.17			
	19-37	24	51	15-35	1.30-1.60	0.60-2.00	0.17-0.22	3.0-5.9	0.0-0.5	.43	.43			
	37-60	24	51	15-35	1.30-1.60	0.60-2.00	0.17-0.22	3.0-5.9	0.0-0.5	.43	.43			
LC: Libory-----	0-10	86	7	2-12	1.50-1.70	5.95-19.98	0.07-0.12	0.0-2.9	1.0-3.0	.17	.17	5	2	134
	10-15	84	9	2-12	1.50-1.70	5.95-19.98	0.06-0.11	0.0-2.9	0.5-1.0	.17	.17			
	15-60	20	57	15-32	1.20-1.40	0.60-2.00	0.17-0.22	0.0-2.9	0.0-0.5	.43	.43			
Boelus-----	0-10	86	7	2-12	1.50-1.70	5.95-19.98	0.10-0.12	0.0-2.9	1.0-3.0	.17	.17	5	2	134
	10-19	86	7	2-12	1.50-1.70	5.95-19.98	0.09-0.11	0.0-2.9	0.5-1.0	.17	.17			
	19-37	24	51	15-35	1.30-1.60	0.60-2.00	0.17-0.22	3.0-5.9	0.0-0.5	.43	.43			
	37-60	24	51	15-35	1.30-1.60	0.60-2.00	0.17-0.22	3.0-5.9	0.0-0.5	.43	.43			
M: Fluvaquents--	0-60	24	50	18-35	1.10-1.65	0.20-6.00	0.16-0.23	0.0-2.9	2.0-8.0	.28	.28	5	8	0
M-W: Miscellaneous Water-----	---			---	---	---	---	---	---	---	---	-	---	---
NsD3: Nuckolls Variant-----	0-7	9	67	20-27	1.10-1.30	0.60-2.00	0.22-0.24	0.0-2.9	0.5-2.0	.37	.37	5	6	48
	7-39	7	66	22-32	1.20-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.5-1.0	.43	.43			
	39-60	9	65	20-32	1.20-1.30	0.60-2.00	0.17-0.20	3.0-5.9	0.0-0.5	.43	.43			
Oa: Ovina-----	0-11	87	7	3-10	1.30-1.50	5.95-19.98	0.10-0.12	0.0-2.9	1.0-2.0	.17	.17	5	2	134
	11-30	67	20	8-18	1.30-1.50	2.00-6.00	0.15-0.17	0.0-2.9	1.0-2.0	.20	.20			
	30-40	46	43	7-15	1.40-1.60	0.60-2.00	0.17-0.19	0.0-2.9	0.5-1.0	.28	.28			
	40-80	64	26	5-15	1.40-1.60	2.00-6.00	0.14-0.16	0.0-2.9	0.5-1.0	.20	.20			
ObB: Ortello-----	0-7	85	7	5-12	1.35-1.55	5.95-19.98	0.10-0.12	0.0-2.9	1.0-2.0	.17	.17	5	2	134
	7-60	67	20	8-18	1.50-1.70	2.00-6.00	0.12-0.17	0.0-2.9	0.0-0.5	.20	.20			
Oe: Ord-----	0-14	45	43	8-15	1.40-1.60	0.60-2.00	0.20-0.22	0.0-2.9	2.0-4.0	.28	.28	4	4L	86
	14-26	65	23	8-15	1.50-1.70	2.00-6.00	0.15-0.17	0.0-2.9	0.5-1.0	.20	.20			
	26-60	80	12	3-12	1.60-1.70	5.95-19.98	0.02-0.04	0.0-2.9	0.0-0.5	.15	.15			
Of: Ord-----	0-14	62	26	8-15	1.40-1.60	2.00-6.00	0.16-0.24	0.0-2.9	1.0-2.0	.20	.20	4	3	86
	14-26	65	23	8-15	1.50-1.70	2.00-6.00	0.15-0.17	0.0-2.9	0.5-1.0	.20	.20			
	26-60	87	6	3-12	1.60-1.70	5.95-19.98	0.02-0.04	0.0-2.9	0.0-0.5	.15	.15			
Ok: O'Neill-----	0-14	45	43	7-17	1.40-1.60	0.60-2.00	0.14-0.17	0.0-2.9	1.0-3.0	.28	.28	4	5	56
	14-20	68	20	6-18	1.60-1.80	2.00-6.00	0.10-0.15	0.0-2.9	0.5-1.0	.20	.20			
	20-60	97	2	0-3	1.50-1.70	19.98-19.98	0.02-0.04	0.0-2.9	0.0-0.5	.10	.17			
OrA: Ortello-----	0-15	64	26	5-15	1.40-1.60	2.00-6.00	0.13-0.18	0.0-2.9	1.0-2.0	.20	.20	5	3	86
	15-25	64	26	5-15	1.40-1.60	2.00-6.00	0.12-0.17	0.0-2.9	0.5-1.0	.20	.20			
	25-60	87	7	2-10	1.50-1.70	5.95-19.98	0.05-0.10	0.0-2.9	0.0-0.5	.15	.15			
Ot: Ortello-----	0-7	46	43	7-15	1.30-1.50	0.60-2.00	0.20-0.22	0.0-2.9	1.0-2.0	.28	.28	5	5	56
	7-25	64	26	5-15	1.40-1.60	2.00-6.00	0.12-0.17	0.0-2.9	0.5-1.0	.20	.20			
	25-60	87	7	2-10	1.50-1.70	5.95-19.98	0.05-0.10	0.0-2.9	0.0-0.5	.15	.15			
OtB: Ortello-----	0-7	46	43	7-15	1.30-1.50	0.60-2.00	0.20-0.22	0.0-2.9	1.0-2.0	.28	.28	5	5	56
	7-25	64	26	5-15	1.40-1.60	2.00-6.00	0.12-0.17	0.0-2.9	0.5-1.0	.20	.20			
	25-60	87	7	2-10	1.50-1.70	5.95-19.98	0.05-0.10	0.0-2.9	0.0-0.5	.15	.15			
OxD: Ortello-----	0-7	64	26	5-15	1.40-1.60	2.00-6.00	0.13-0.18	0.0-2.9	1.0-2.0	.20	.20	5	3	86
	7-60	64	26	5-15	1.40-1.60	2.00-6.00	0.12-0.17	0.0-2.9	0.5-1.0	.20	.20			
Coly-----	0-5	11	68	18-24	1.30-1.50	0.60-2.00	0.20-0.24	0.0-2.9	1.0-2.0	.43	.43	5	4L	86
	5-60	11	68	18-24	1.30-1.50	0.60-2.00	0.17-0.22	0.0-2.9	0.5-1.0	.43	.43			
RB: Coly-----	0-3	11	68	18-24	1.30-1.50	0.60-2.00	0.20-0.24	0.0-2.9	1.0-2.0	.43	.43	5	4L	86
	3-60	11	68	18-24	1.30-1.50	0.60-2.00	0.17-0.22	0.0-2.9	0.5-1.0	.43	.43			
Ru: Rusco-----	0-7	11	67	17-27	1.30-1.40	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.32	.32	5	5	56
	7-26	7	62	28-35	1.20-1.30	0.20-0.60	0.18-0.20	3.0-5.9	0.5-1.0	.43	.43			
	26-60	11	69	15-25	1.40-1.50	0.60-2.00	0.17-0.22	0.0-2.9	0.5-1.0	.43	.43			
Sm: Simeon-----	0-8	82	9	5-12	1.30-1.50	5.95-19.98	0.08-0.14	0.0-2.9	0.5-1.0	.17	.17	5	2	134
	8-80	92	2	2-10	1.50-1.70	5.95-19.98	0.05-0.10	0.0-2.9	0.0-0.5	.15	.15			
SS: Silver Creek-	0-8	24	52	20-27	1.20-1.45	0.60-2.00	0.20-0.23	0.0-2.9	2.0-4.0	.32	.32	2	6	48
	8-28	7	52	35-48	1.20-1.45	0.06-0.20	0.11-0.18	6.0-8.9	0.5-1.0	.32	.32			
	28-60	26	52	17-27	1.40-1.65	0.60-2.00	0.18-0.20	3.0-5.9	0.5-1.0	.43	.43			
Slickspots---	0-5	24	52	20-27	1.15-1.20	0.60-2.00	0.17-0.20	0.0-2.9	1.0-3.0	.32	.32	2	6	48
	5-30	8	50	35-50	1.30-1.40	0.00-0.06	0.15-0.17	6.0-8.9	1.0-3.0	.32	.32			
	30-60	17	48	30-40	1.30-1.40	0.20-0.60	0.10-0.13	6.0-8.9	0.5-1.0	.32	.32			
Sy: Hobbs-----	0-20	11	68	15-27	1.20-1.40	0.60-2.00	0.21-0.24	0.0-2.9	2.0-4.0	.32	.32	5	6	48
	20-60	11	68	15-27	1.20-1.40	0.60-2.00	0.18-0.20	0.0-2.9	0.5-1.0	.32	.32			

PHYSICAL PROPERTIES OF THE SOILS
Howard County, Nebraska: Out-of-date

(Single entries under "Sand and Silt" are a representative percentage are calculated using an algorithm. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										K	Kf	T		
	In	Pct	Pct	Pct	g/cc	in/hr	In/in	Pct	Pct					
TfB:														
Thurman-----	0-10	95	1	2-7	1.40-1.60	5.95-19.98	0.07-0.09	0.0-2.9	1.0-2.0	.15	.15	5	1	180
	10-32	85	7	5-12	1.55-1.75	5.95-19.98	0.09-0.11	0.0-2.9	0.0-0.5	.17	.17			
	32-80	95	1	2-7	1.60-1.80	5.95-19.98	0.06-0.08	0.0-2.9	0.0-0.5	.15	.15			
ThA:														
Thurman-----	0-10	85	7	5-12	1.35-1.55	5.95-19.98	0.10-0.12	0.0-2.9	1.0-2.0	.17	.17	5	2	134
	10-14	85	7	5-12	1.55-1.75	5.95-19.98	0.09-0.11	0.0-2.9	0.0-0.5	.17	.17			
	14-60	95	1	2-7	1.60-1.80	5.95-19.98	0.06-0.08	0.0-2.9	0.0-0.5	.15	.15			
ThB:														
Thurman-----	0-10	85	7	5-12	1.35-1.55	5.95-19.98	0.10-0.12	0.0-2.9	1.0-2.0	.17	.17	5	2	134
	10-14	85	7	5-12	1.55-1.75	5.95-19.98	0.09-0.11	0.0-2.9	0.0-0.5	.17	.17			
	14-60	95	1	2-7	1.60-1.80	5.95-19.98	0.06-0.08	0.0-2.9	0.0-0.5	.15	.15			
Ty:														
Almeria-----	0-5	44	41	12-18	1.40-1.50	0.60-2.00	0.20-0.22	0.0-2.9	1.0-12	.32	.32	5	8	0
	5-60	80	14	1-10	1.55-1.80	5.95-19.98	0.05-0.12	0.0-2.9	0.0-0.5	.15	.15			
UsC:														
Uly-----	0-8	11	67	17-27	1.20-1.45	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	8-19	9	66	20-30	1.25-1.45	0.60-2.00	0.18-0.22	0.0-2.9	0.5-1.0	.43	.43			
	19-60	10	68	18-27	1.25-1.45	0.60-2.00	0.16-0.20	0.0-2.9	0.0-0.5	.43	.43			
UsD:														
Uly-----	0-8	11	67	17-27	1.20-1.45	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	8-19	9	66	20-30	1.25-1.45	0.60-2.00	0.18-0.22	0.0-2.9	0.5-1.0	.43	.43			
	19-60	10	68	18-27	1.25-1.45	0.60-2.00	0.16-0.20	0.0-2.9	0.0-0.5	.43	.43			
VaC:														
Valentine----	0-4	96	1	0-6	1.40-1.60	5.95-19.98	0.07-0.09	0.0-2.9	0.5-1.0	.15	.15	5	1	250
	4-11	87	7	2-10	1.55-1.75	5.95-19.98	0.09-0.11	0.0-2.9	0.0-0.5	.17	.17			
	11-60	96	1	0-6	1.60-1.80	5.95-19.98	0.05-0.07	0.0-2.9	0.0-0.5	.15	.15			
VTD:														
Valentine----	0-4	96	1	0-6	1.40-1.60	5.95-19.98	0.07-0.09	0.0-2.9	0.5-1.0	.15	.15	5	1	250
	4-11	87	7	2-10	1.55-1.75	5.95-19.98	0.09-0.11	0.0-2.9	0.0-0.5	.17	.17			
	11-60	96	1	0-6	1.60-1.80	5.95-19.98	0.05-0.07	0.0-2.9	0.0-0.5	.15	.15			
Thurman-----	0-10	85	7	5-12	1.35-1.55	5.95-19.98	0.10-0.12	0.0-2.9	1.0-2.0	.17	.17	5	2	134
	10-14	85	7	5-12	1.55-1.75	5.95-19.98	0.09-0.11	0.0-2.9	0.0-0.5	.17	.17			
	14-60	95	1	2-7	1.60-1.80	5.95-19.98	0.06-0.08	0.0-2.9	0.0-0.5	.15	.15			
W:														
Water-----	---			---	---	---	---	---	---	---	---	-	---	0

CHEMICAL PROPERTIES OF THE SOILS
Howard County, Nebraska

The Chemical Properties table shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils. Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. Soils having a high cation-exchange capacity can retain cations. The ability to retain cations helps to prevent the pollution of ground water.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

Gypsum is expressed as a percent, by weight, of hydrated calcium sulfates in the fraction of the soil less than 20 millimeters in size. Gypsum is partially soluble in water and can be dissolved and removed by water. Soils that have a high content of gypsum may collapse if the gypsum is removed by percolating water.

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Sodium adsorption ratio (SAR) is a measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration. Soils that have SAR values of 13 or more may be characterized by an increased dispersion of organic matter and clay particles, reduced permeability and aeration, and a general degradation of soil structure.

CHEMICAL PROPERTIES OF THE SOILS--Continued
Howard County, Nebraska

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Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
2Hb:							
Hobbs-----	0-5	15-30	6.1-7.8	0	0	0	0
	5-60	20-40	6.6-8.4	0-5	0	0	0
2ThA:							
Thurman-----	0-36	2.0-10	6.1-7.3	0	0	0	0
	36-60	2.0-8.0	6.6-7.3	0	0	0	0
2To:							
Almeria-----	0-5	10-30	6.1-8.4	0-5	0	0.0-4.0	0
	5-60	1.0-8.0	5.6-7.3	0	0	0.0-4.0	0
AED:							
Arents, Earthen Dam-----	---	---	---	---	---	---	---
B:							
Psammments-----	0-60	0.0-5.0	6.1-7.3	0	0	0	0
Boa:							
Boel-----	0-11	4.0-11	6.6-8.4	0-5	0	0	0
	11-80	0.0-4.0	6.6-8.4	0-5	0	0	0
Bob:							
Boel-----	0-11	8.0-17	6.6-8.4	0-5	0	0	0
	11-80	0.0-4.0	6.6-8.4	0-5	0	0	0
Boc:							
Boel-----	0-11	13-24	6.6-8.4	0-5	0	0	0
	11-80	0.0-4.0	6.6-8.4	0-5	0	0	0
CbC:							
Coly-----	0-5	14-19	7.4-8.4	1-5	0	0	0
	5-60	13-18	7.4-8.4	5-10	0	0	0
CbD:							
Coly-----	0-5	14-19	7.4-8.4	1-5	0	0	0
	5-60	13-18	7.4-8.4	5-10	0	0	0
CUD:							
Coly-----	0-5	14-19	7.4-8.4	1-5	0	0	0
	5-60	13-18	7.4-8.4	5-10	0	0	0
Uly-----	0-8	10-20	6.1-7.8	0	0	0	0
	8-13	14-25	6.1-7.8	0	0	0	0
	13-60	12-20	7.4-8.4	1-15	0	0	0
Da:							
Darr-----	0-12	6.0-12	6.6-7.3	0	0	0	0
	12-26	4.0-14	6.6-7.3	0-5	0	0	0
	26-60	1.0-5.0	6.6-8.4	0-5	0	0	0
Db:							
Darr-----	0-12	10-22	6.6-7.3	0	0	0	0
	12-26	4.0-14	6.6-8.4	0-5	0	0	0
	26-60	1.0-5.0	6.6-8.4	0-5	0	0	0
De:							
Detroit-----	0-5	10-25	6.1-7.3	0	0	0	0
	5-52	15-30	6.6-7.8	0	0	0	0
	52-60	10-20	6.6-8.4	0-10	0	0	0-1
Ea:							
Elsmere-----	0-11	5.0-15	5.6-7.3	0	0	0	0
	11-17	0.0-5.0	5.6-7.3	0	0	0	0
	17-60	0.0-5.0	5.6-7.8	0	0	0	0
Gg:							
Gibbon-----	0-8	16-22	7.4-8.4	0-5	0	0.0-2.0	0
	8-43	14-20	7.4-8.4	5-15	0	0.0-2.0	0-5
	43-60	10-18	7.9-8.4	5-15	0	0.0-2.0	0-5
Gibbon-----	0-8	16-22	7.4-8.4	0-5	0	0.0-2.0	0
	8-43	14-20	7.4-8.4	5-15	0	0.0-2.0	0-5
	43-60	10-18	7.9-8.4	5-15	0	0.0-2.0	0-5
Gk:							
Grigston-----	0-10	20-30	6.6-7.8	0	0	0	0
	10-19	15-30	7.4-8.4	5-10	0	0	0
	19-60	10-15	7.4-8.4	5-10	0	0	0
GP:							
Pits-----	0-60	0.0-5.0	6.6-8.4	0	0	0	0
GsC3:							
Nuckolls Variant	0-5	18-25	5.6-7.3	0	0	0	0
	5-17	14-21	6.6-8.4	0-5	0	0	0
	17-60	14-21	7.4-8.4	1-10	0	0	0

CHEMICAL PROPERTIES OF THE SOILS--Continued
Howard County, Nebraska

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Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
GsD3:							
Nuckolls Variant	0-5	18-25	5.6-7.3	0	0	0	0
	5-17	14-21	6.6-8.4	0-5	0	0	0
	17-60	14-21	7.4-8.4	1-10	0	0	0
Ha:							
Hall-----	0-6	13-23	6.1-7.3	0	0	0	0
	6-29	15-27	6.1-7.8	0	0	0	0
	29-45	11-22	6.6-7.8	0-5	0	0	0
	45-60	8.0-22	6.6-8.4	1-5	0	0	0
Hb:							
Hord-----	0-5	10-20	5.6-7.3	0	0	0	0
	5-25	10-30	6.1-7.8	0	0	0	0
	25-60	10-35	7.4-8.4	0-5	0	0	0
HbA:							
Hord-----	0-5	10-20	5.6-7.3	0	0	0	0
	5-25	10-30	6.1-7.8	0	0	0	0
	25-60	10-35	7.4-8.4	0-5	0	0	0
HbB:							
Hord-----	0-5	10-20	5.6-7.3	0	0	0	0
	5-25	10-30	6.1-7.8	0	0	0	0
	25-60	10-35	7.4-8.4	0-5	0	0	0
Hd:							
Hord-----	0-20	10-20	5.6-7.3	0	0	0	0
	20-39	10-30	6.1-7.8	0	0	0	0
	39-60	10-35	7.4-8.4	0-5	0	0	0
Hg:							
Holdrege-----	0-13	16-24	5.6-7.3	0	0	0	0
	13-39	19-26	6.6-7.8	0	0	0	0
	39-60	14-19	7.4-8.4	0-5	0	0	0
HgA:							
Holdrege-----	0-13	16-24	5.6-7.3	0	0	0	0
	13-39	19-26	6.6-7.8	0	0	0	0
	39-60	14-19	7.4-8.4	0-5	0	0	0
HgB2:							
Holdrege-----	0-9	16-24	5.6-7.3	0	0	0	0
	9-35	19-26	6.6-7.8	0	0	0	0
	35-60	14-19	7.4-8.4	0-5	0	0	0
HgC:							
Holdrege-----	0-11	16-24	5.6-7.3	0	0	0	0
	11-37	19-26	6.6-7.8	0	0	0	0
	37-60	14-19	7.4-8.4	0-5	0	0	0
HpC2:							
Holdrege-----	0-7	20-30	5.6-7.3	0	0	0	0
	7-32	19-26	6.6-7.8	0	0	0	0
	32-60	14-19	7.4-8.4	0-5	0	0	0
HpC3:							
Holdrege Variant	0-5	20-30	5.6-7.3	0	0	0	0
	5-26	19-26	6.6-7.8	0	0	0	0
	26-60	14-19	7.4-8.4	0-5	0	0	0
Hs:							
Harney-----	0-10	20-30	5.6-7.8	0	0	0	0
	10-44	25-35	6.1-8.4	0	0	0	0
	44-60	15-35	7.4-8.4	0	0	0	0
Ia:							
Inavale-----	0-8	10-20	5.6-7.8	0	0	0	0
	8-13	0.0-10	5.6-7.8	0	0	0	0
	13-60	0.0-10	5.6-7.8	0	0	0	0
If:							
Inavale-----	0-8	1.0-5.0	5.6-7.8	0	0	0	0
	8-13	1.0-10	5.6-7.8	0	0	0	0
	13-60	1.0-10	5.6-7.8	0	0	0	0
Ig:							
Inavale-----	0-8	2.0-10	5.6-7.8	0	0	0	0
	8-13	1.0-10	5.6-7.8	0	0	0	0
	13-60	1.0-10	5.6-7.8	0	0	0	0
In:							
Inavale-----	0-8	5.0-15	5.6-7.8	0	0	0	0
	8-13	0.0-10	5.6-7.8	0	0	0	0
	13-60	0.0-10	5.6-7.8	0	0	0	0
INT:							
Aquolls-----	0-72	---	---	---	---	---	---

CHEMICAL PROPERTIES OF THE SOILS--Continued
Howard County, Nebraska

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Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
Ks:							
Kenesaw-----	0-8	9.0-17	6.1-7.3	0	0	0	0
	8-46	7.0-13	6.6-8.4	0-5	0	0	0
	46-60	5.0-13	7.4-8.4	1-5	0	0	0
KsB:							
Kenesaw-----	0-8	9.0-17	6.1-7.3	0	0	0	0
	8-46	7.0-13	6.6-8.4	0-5	0	0	0
	46-60	5.0-13	7.4-8.4	1-5	0	0	0
KsC:							
Kenesaw-----	0-8	9.0-17	6.1-7.3	0	0	0	0
	8-46	7.0-13	6.6-8.4	0-5	0	0	0
	46-60	5.0-13	7.4-8.4	1-5	0	0	0
KSz:							
Kenesaw-----	0-8	9.0-17	6.1-7.3	0	0	0	0
	8-46	7.0-13	6.6-8.4	0-5	0	0	0
	46-60	5.0-13	7.4-8.4	1-5	0	0	0
Cozad-----	0-5	14-17	7.9-8.4	1-5	0	2.0-4.0	0-9
	5-14	14-17	8.5-9.0	1-5	0	4.0-8.0	9-13
	14-60	13-16	8.5-9.0	1-5	0	4.0-8.0	9-13
L:							
Loretto-----	0-18	8.0-20	5.1-6.5	0	0	0	0
	18-38	15-25	5.6-7.3	0	0	0	0
	38-60	10-25	6.1-7.8	0	0	0	0
La:							
Lamo-----	0-13	18-28	7.4-8.4	1-5	0	0	0
	13-60	15-25	7.4-8.4	1-15	0	0	0
LB:							
Libory-----	0-10	2.0-10	5.6-7.3	0	0	0	0
	10-15	1.0-9.0	5.6-7.3	0	0	0	0
	15-60	10-22	5.6-7.8	0	0	0	0
Boelus-----	0-10	2.0-13	5.6-7.3	0	0	0	0
	10-19	2.0-8.0	6.1-7.8	0	0	0	0
	19-37	11-25	6.1-7.8	0-5	0	0	0
	37-60	11-25	6.6-8.4	0-5	0	0	0
LC:							
Libory-----	0-10	2.0-12	5.6-7.3	0	0	0	0
	10-15	1.0-9.0	5.6-7.3	0	0	0	0
	15-60	10-22	5.6-7.8	0	0	0	0
Boelus-----	0-10	2.0-14	5.6-7.3	0	0	0	0
	10-19	2.0-8.0	6.1-7.8	0	0	0	0
	19-37	11-25	6.1-7.8	0-5	0	0	0
	37-60	11-25	6.6-8.4	0-5	0	0	0
M:							
Fluvaquents----	0-60	10-35	6.6-8.4	0-5	0	0.0-2.0	0
M-W:							
Miscellaneous	---	---	---	---	---	---	---
Water-----							
NSD3:							
Nuckolls Variant	0-7	15-25	5.6-7.3	0	0	0	0
	7-39	15-23	6.6-7.8	0	0	0	0
	39-60	14-21	7.4-8.4	1-10	0	0	0
Oa:							
Ovina-----	0-11	3.0-9.0	6.6-8.4	0-10	0	0	0
	11-30	7.0-15	6.6-8.4	0-10	0	0	0
	30-40	5.0-12	7.4-8.4	1-10	0	0	0
	40-80	4.0-12	7.4-8.4	1-10	0	0	0
ObB:							
Ortello-----	0-7	4.0-10	5.6-7.3	0	0	0	0
	7-60	5.0-15	6.1-7.3	0	0	0	0
Oe:							
Ord-----	0-14	10-20	7.4-8.4	5-40	0	0.0-2.0	0-2
	14-26	5.0-15	6.6-8.4	0-5	0	0.0-2.0	0-2
	26-60	0.0-10	6.6-8.4	0-5	0	0	0
Of:							
Ord-----	0-14	10-20	7.4-8.4	5-40	0	0.0-2.0	0-5
	14-26	5.0-15	6.6-8.4	0-5	0	0.0-2.0	0-2
	26-60	0.0-10	6.6-8.4	0-5	0	0	0
Ok:							
O'Neill-----	0-14	10-20	5.1-6.5	0	0	0	0
	14-20	5.0-15	5.6-7.3	0	0	0	0
	20-60	0.0-5.0	5.6-7.3	0	0	0	0

CHEMICAL PROPERTIES OF THE SOILS--Continued
Howard County, Nebraska

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Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
OrA:							
Ortello-----	0-15	5.0-15	5.6-7.3	0	0	0	0
	15-25	5.0-15	6.1-7.3	0	0	0	0
	25-60	5.0-15	6.6-7.8	0	0	0	0
Ot:							
Ortello-----	0-7	5.0-15	5.6-7.3	0	0	0	0
	7-25	5.0-15	6.1-7.3	0	0	0	0
	25-60	5.0-15	6.6-7.8	0	0	0	0
OtB:							
Ortello-----	0-7	5.0-15	5.6-7.3	0	0	0	0
	7-25	5.0-15	6.1-7.3	0	0	0	0
	25-60	5.0-15	6.6-7.8	0	0	0	0
OxD:							
Ortello-----	0-7	5.0-15	5.6-7.3	0	0	0	0
	7-60	5.0-15	6.1-7.3	0	0	0	0
Coly-----	0-5	14-19	7.4-8.4	1-5	0	0	0
	5-60	13-18	7.4-8.4	5-10	0	0	0
RB:							
Coly-----	0-3	14-19	7.4-8.4	1-5	0	0	0
	3-60	13-18	7.4-8.4	5-10	0	0	0
Ru:							
Rusco-----	0-7	10-30	6.1-7.8	0	0	0	0
	7-26	20-30	6.6-8.4	0-5	0	0	0
	26-60	10-20	6.6-8.4	1-10	0	0	0
Sm:							
Simeon-----	0-8	0.0-5.0	6.1-7.8	0	0	0	0
	8-80	0.0-5.0	6.1-7.8	0	0	0	0
SS:							
Silver Creek----	0-8	15-25	6.6-7.8	0-5	0	2.0-4.0	0-5
	8-28	25-40	7.4-8.4	1-15	0	2.0-8.0	0-5
	28-60	10-20	7.9-9.0	1-15	0	2.0-8.0	5-10
Slickspots-----	0-5	16-24	7.4-8.4	0	0	0.0-2.0	0-13
	5-30	20-40	7.4-9.0	1-5	0	1.0-16.0	13-40
	30-60	20-30	7.9-9.0	0-5	0	0.0-8.0	13-30
Sy:							
Hobbs-----	0-20	15-30	6.1-7.8	0	0	0	0
	20-60	10-20	6.1-7.8	0	0	0	0
TfB:							
Thurman-----	0-10	2.0-7.0	5.6-7.3	0	0	0	0
	10-32	1.0-10	5.6-7.3	0	0	0	0
	32-80	1.0-6.0	5.6-7.3	0	0	0	0
ThA:							
Thurman-----	0-10	4.0-10	5.6-7.3	0	0	0	0
	10-14	1.0-10	5.6-7.3	0	0	0	0
	14-60	1.0-6.0	5.6-7.3	0	0	0	0
ThB:							
Thurman-----	0-10	4.0-10	5.6-7.3	0	0	0	0
	10-14	1.0-10	5.6-7.3	0	0	0	0
	14-60	1.0-6.0	5.6-7.3	0	0	0	0
Ty:							
Almeria-----	0-5	10-30	6.1-8.4	0-5	0	0.0-4.0	0
	5-60	1.0-8.0	5.6-7.3	0-5	0	0.0-4.0	0
UsC:							
Uly-----	0-8	10-20	6.1-7.8	0	0	0	0
	8-19	14-25	6.1-7.8	0	0	0	0
	19-60	12-20	7.4-8.4	1-15	0	0	0
UsD:							
Uly-----	0-8	10-20	6.1-7.8	0	0	0	0
	8-19	14-25	6.1-7.8	0	0	0	0
	19-60	12-20	7.4-8.4	1-15	0	0	0
VaC:							
Valentine-----	0-4	0.0-6.0	5.6-7.3	0	0	0	0
	4-11	1.0-8.0	5.6-7.3	0	0	0	0
	11-60	0.0-5.0	5.6-7.3	0	0	0	0
VTD:							
Valentine-----	0-4	0.0-6.0	5.6-7.3	0	0	0	0
	4-11	1.0-8.0	5.6-7.3	0	0	0	0
	11-60	0.0-5.0	5.6-7.3	0	0	0	0
Thurman-----	0-10	4.0-10	5.6-7.3	0	0	0	0
	10-14	1.0-10	5.6-7.3	0	0	0	0
	14-60	1.0-6.0	5.6-7.3	0	0	0	0

CHEMICAL PROPERTIES OF THE SOILS--Continued
Howard County, Nebraska

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Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
W: Water-----	---	---	---	---	---	---	---

WATER FEATURES Howard County, Nebraska

The Water Features table gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations. Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

The months in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. The Water Features table indicates, by month, depth to the top (upper limit) and base (lower limit) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table. Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. The Water Features table indicates surface water depth and the duration and frequency of ponding. Duration is expressed as very brief if less than 2 days, brief if 2 to 7 days, long if 7 to 30 days, and very long if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. None means that ponding is not probable; rare that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); occasional that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and frequent that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding, the temporary inundation of an area, is caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and frequency are estimated. Duration is expressed as extremely brief if 0.1 hour to 4 hours, very brief if 4 hours to 2 days, brief if 2 to 7 days, long if 7 to 30 days, and very long if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. None means that flooding is not probable; very rare that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); rare that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); occasional that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); frequent that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and very frequent that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro- logic group	Month	Soil Saturation		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
2Hb: Hobbs-----	B	April	---	---	---	---	---	Brief	Occasional
		May	---	---	---	---	---	Brief	Occasional
		June	---	---	---	---	---	Brief	Occasional
		July	---	---	---	---	---	Brief	Occasional
		August	---	---	---	---	---	Brief	Occasional
		September	---	---	---	---	---	Brief	Occasional
2ThA: Thurman-----	A		---	---	---	---	---	---	---
2To: Almeria-----	D	January	0.0-1.5	>6.0	---	---	---	---	None
		February	0.0-1.5	>6.0	---	---	---	Brief	Occasional
		March	0.0-1.5	>6.0	---	---	---	Brief	Occasional
		April	0.0-1.5	>6.0	---	---	---	Brief	Occasional
		May	0.0-1.5	>6.0	---	---	---	Brief	Occasional
		June	0.0-1.5	>6.0	---	---	---	Brief	Occasional
		July	0.0-1.5	>6.0	---	---	---	---	None
		November	0.0-1.5	>6.0	---	---	---	---	None
		December	0.0-1.5	>6.0	---	---	---	---	None
B: Psamments-----	A		---	---	---	---	---	---	---
Boa: Boel-----	A	January	1.5-3.0	>6.0	---	---	---	---	None
		February	1.5-3.0	>6.0	---	---	---	---	None
		March	1.5-3.0	>6.0	---	---	---	Brief	Rare
		April	1.5-3.0	>6.0	---	---	---	Brief	Rare
		May	1.5-3.0	>6.0	---	---	---	Brief	Rare
		June	1.5-3.0	>6.0	---	---	---	Brief	Rare
		November	1.5-3.0	>6.0	---	---	---	---	None
		December	1.5-3.0	>6.0	---	---	---	---	None
Bob: Boel-----	A	January	1.5-3.0	>6.0	---	---	---	---	None
		February	1.5-3.0	>6.0	---	---	---	---	None
		March	1.5-3.0	>6.0	---	---	---	---	None
		April	1.5-3.0	>6.0	---	---	---	---	None
		May	1.5-3.0	>6.0	---	---	---	---	None
		November	1.5-3.0	>6.0	---	---	---	---	None
		December	1.5-3.0	>6.0	---	---	---	---	None
Boc: Boel-----	A	January	1.5-3.0	>6.0	---	---	---	---	None
		February	1.5-3.0	>6.0	---	---	---	---	None
		March	1.5-3.0	>6.0	---	---	---	---	None
		April	1.5-3.0	>6.0	---	---	---	---	None
		May	1.5-3.0	>6.0	---	---	---	---	None
		November	1.5-3.0	>6.0	---	---	---	---	None
		December	1.5-3.0	>6.0	---	---	---	---	None
CbC: Coly-----	B		---	---	---	---	---	---	---
CbD: Coly-----	B		---	---	---	---	---	---	---
CUD: Coly-----	B		---	---	---	---	---	---	---
Uly-----	B		---	---	---	---	---	---	---
Da: Darr-----	B		---	---	---	---	---	---	---
Db: Darr-----	B		---	---	---	---	---	---	---
De: Detroit-----	C		---	---	---	---	---	---	---
Ea: Elsmere-----	A	January	1.5-3.0	>6.0	---	---	---	---	None
		February	1.5-3.0	>6.0	---	---	---	---	None
		March	1.5-3.0	>6.0	---	---	---	---	None
		April	1.5-3.0	>6.0	---	---	---	---	None
		May	1.5-3.0	>6.0	---	---	---	---	None
		November	1.5-3.0	>6.0	---	---	---	---	None
		December	1.5-3.0	>6.0	---	---	---	---	None
Gg:									

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro- logic group	Month	Soil Saturation		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
Gibbon-----	B	January	1.5-3.0	>6.0	---	---	---	---	None
		February	1.5-3.0	>6.0	---	---	---	---	None
		March	1.5-3.0	>6.0	---	---	---	---	None
		April	1.5-3.0	>6.0	---	---	---	---	None
		May	1.5-3.0	>6.0	---	---	---	---	None
		June	1.5-3.0	>6.0	---	---	---	---	None
		November	1.5-3.0	>6.0	---	---	---	---	None
		December	1.5-3.0	>6.0	---	---	---	---	None
Gibbon-----	B	January	1.5-3.0	>6.0	---	---	---	---	None
		February	1.5-3.0	>6.0	---	---	---	---	None
		March	1.5-3.0	>6.0	---	---	---	---	None
		April	1.5-3.0	>6.0	---	---	---	---	None
		May	1.5-3.0	>6.0	---	---	---	---	None
		June	1.5-3.0	>6.0	---	---	---	---	None
		November	1.5-3.0	>6.0	---	---	---	---	None
		December	1.5-3.0	>6.0	---	---	---	---	None
Gk: Grigston-----	B		---	---	---	---	---	---	---
GP: Pits-----	A		---	---	---	---	---	---	---
GsC3: Nuckolls Variant-----	B		---	---	---	---	---	---	---
GsD3: Nuckolls Variant-----	B		---	---	---	---	---	---	---
Ha: Hall-----	B		---	---	---	---	---	---	---
Hb: Hord-----	B		---	---	---	---	---	---	---
HbA: Hord-----	B		---	---	---	---	---	---	---
HbB: Hord-----	B		---	---	---	---	---	---	---
Hd: Hord-----	B		---	---	---	---	---	---	---
Hg: Holdrege-----	B		---	---	---	---	---	---	---
HgA: Holdrege-----	B		---	---	---	---	---	---	---
HgB2: Holdrege-----	B		---	---	---	---	---	---	---
HgC: Holdrege-----	B		---	---	---	---	---	---	---
HpC2: Holdrege-----	B		---	---	---	---	---	---	---
HpC3: Holdrege Variant-----	B		---	---	---	---	---	---	---
Hs: Harney-----	B		---	---	---	---	---	---	---
Ia: Inavale-----	A		---	---	---	---	---	---	---
If: Inavale-----	A		---	---	---	---	---	---	---
Ig: Inavale-----	A		---	---	---	---	---	---	---
In: Inavale-----	A		---	---	---	---	---	---	---
INT: Aquolls-----	C	March	0.0	>6.0	0.0-0.8	Brief	Occasional	---	None
		April	0.0	>6.0	0.0-0.8	Brief	Occasional	---	None
		May	0.0	>6.0	0.0-0.8	Brief	Occasional	---	None
		June	0.0	>6.0	0.0-0.8	Brief	Occasional	---	None

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro- logic group	Month	Soil Saturation		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
Ks: Kenesaw-----	B		---	---	---	---	---	---	---
KsB: Kenesaw-----	B		---	---	---	---	---	---	---
KsC: Kenesaw-----	B		---	---	---	---	---	---	---
KSz: Kenesaw-----	B		---	---	---	---	---	---	---
Cozad-----	B		---	---	---	---	---	---	---
		January	3.0-6.0	>6.0	---	---	---	---	None
		February	3.0-6.0	>6.0	---	---	---	---	None
		March	3.0-6.0	>6.0	---	---	---	---	None
		April	3.0-6.0	>6.0	---	---	---	---	None
		May	3.0-6.0	>6.0	---	---	---	---	None
		November	3.0-6.0	>6.0	---	---	---	---	None
		December	3.0-6.0	>6.0	---	---	---	---	None
L: Loretto-----	B		---	---	---	---	---	---	---
La: Lamo-----	C		---	---	---	---	---	---	---
		January	1.0-3.0	>6.0	---	---	---	---	None
		February	1.0-3.0	>6.0	---	---	---	---	None
		March	1.0-3.0	>6.0	---	---	---	Brief	Occasional
		April	1.0-3.0	>6.0	---	---	---	Brief	Occasional
		May	1.0-3.0	>6.0	---	---	---	Brief	Occasional
		June	---	---	---	---	---	Brief	Occasional
		July	---	---	---	---	---	Brief	Occasional
		August	---	---	---	---	---	Brief	Occasional
		November	1.0-3.0	>6.0	---	---	---	---	None
		December	1.0-3.0	>6.0	---	---	---	---	None
LB: Libory-----	A		---	---	---	---	---	---	---
		March	1.5-3.0	1.5-3.0	---	---	---	---	None
		April	1.5-3.0	1.5-3.0	---	---	---	---	None
		May	1.5-3.0	1.5-3.0	---	---	---	---	None
		June	1.5-3.0	1.5-3.0	---	---	---	---	None
Boelus-----	A		---	---	---	---	---	---	---
LC: Libory-----	A		---	---	---	---	---	---	---
		March	1.5-3.0	1.5-3.0	---	---	---	---	None
		April	1.5-3.0	1.5-3.0	---	---	---	---	None
		May	1.5-3.0	1.5-3.0	---	---	---	---	None
		June	1.5-3.0	1.5-3.0	---	---	---	---	None
Boelus-----	A		---	---	---	---	---	---	---
M: Fluvaquents-----	D		---	---	---	---	---	---	---
		January	0.0	>6.0	0.0-2.0	Very long	---	Brief	Frequent
		February	0.0	>6.0	0.0-2.0	Very long	---	Brief	Frequent
		March	0.0	>6.0	0.0-2.0	Very long	---	Brief	Frequent
		April	0.0	>6.0	0.0-2.0	Very long	---	Brief	Frequent
		May	0.0	>6.0	0.0-2.0	Very long	---	Brief	Frequent
		June	0.0	>6.0	0.0-2.0	Very long	---	Brief	Frequent
		July	0.0	>6.0	0.0-2.0	Very long	---	---	None
		August	0.0	>6.0	0.0-2.0	Very long	---	---	None
		September	0.0	>6.0	0.0-2.0	Very long	---	---	None
		October	0.0	>6.0	0.0-2.0	Very long	---	---	None
		November	0.0	>6.0	0.0-2.0	Very long	---	Brief	Frequent
		December	0.0	>6.0	0.0-2.0	Very long	---	Brief	Frequent
NsD3: Nuckolls Variant-----	B		---	---	---	---	---	---	---
Oa: Ovina-----	B		---	---	---	---	---	---	---
		May	1.0-3.0	>6.0	---	---	---	---	None
		June	1.0-3.0	>6.0	---	---	---	---	None
		July	1.0-3.0	>6.0	---	---	---	---	None
		August	1.0-3.0	>6.0	---	---	---	---	None
		September	1.0-3.0	>6.0	---	---	---	---	None
		October	1.0-3.0	>6.0	---	---	---	---	None
		November	1.0-3.0	>6.0	---	---	---	---	None
ObB: Ortello-----	B		---	---	---	---	---	---	---
Oe:			---	---	---	---	---	---	---

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro- logic group	Month	Soil Saturation		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
Ord-----	B	January	1.5-3.0	>6.0	---	---	---	---	None
		February	1.5-3.0	>6.0	---	---	---	---	None
		March	1.5-3.0	>6.0	---	---	---	---	None
		April	1.5-3.0	>6.0	---	---	---	---	None
		May	1.5-3.0	>6.0	---	---	---	---	None
		November	1.5-3.0	>6.0	---	---	---	---	None
		December	1.5-3.0	>6.0	---	---	---	---	None
Of: Ord-----	B	January	1.5-3.0	>6.0	---	---	---	---	None
		February	1.5-3.0	>6.0	---	---	---	---	None
		March	1.5-3.0	>6.0	---	---	---	---	None
		April	1.5-3.0	>6.0	---	---	---	---	None
		May	1.5-3.0	>6.0	---	---	---	---	None
		November	1.5-3.0	>6.0	---	---	---	---	None
		December	1.5-3.0	>6.0	---	---	---	---	None
Ok: O'Neill-----	B		---	---	---	---	---	---	---
OrA: Ortello-----	B		---	---	---	---	---	---	---
Ot: Ortello-----	B		---	---	---	---	---	---	---
OtB: Ortello-----	B		---	---	---	---	---	---	---
OxD: Ortello-----	B		---	---	---	---	---	---	---
Coly-----	B		---	---	---	---	---	---	---
RB: Coly-----	B		---	---	---	---	---	---	---
Ru: Rusco-----	C	January	2.0-4.0	2.0-4.0	---	---	---	---	None
		February	2.0-4.0	2.0-4.0	---	---	---	---	None
		March	2.0-4.0	2.0-4.0	---	---	---	Brief	Occasional
		April	2.0-4.0	2.0-4.0	---	---	---	Brief	Occasional
		May	2.0-4.0	2.0-4.0	---	---	---	Brief	Occasional
		June	2.0-4.0	2.0-4.0	---	---	---	Brief	Occasional
		July	---	---	---	---	---	Brief	Occasional
		November	2.0-4.0	2.0-4.0	---	---	---	---	None
		December	2.0-4.0	2.0-4.0	---	---	---	---	None
Sm: Simeon-----	A		---	---	---	---	---	---	---
SS: Silver Creek-----	D	March	1.5-3.0	>6.0	---	---	---	---	None
		April	1.5-3.0	>6.0	---	---	---	---	None
		May	1.5-3.0	>6.0	---	---	---	---	None
		June	1.5-3.0	>6.0	---	---	---	---	None
Slickspots-----	D	January	3.0-6.0	>6.0	---	---	---	---	None
		February	3.0-6.0	>6.0	---	---	---	---	None
		March	3.0-6.0	>6.0	---	---	---	---	None
		April	3.0-6.0	>6.0	---	---	---	---	None
		May	3.0-6.0	>6.0	---	---	---	---	None
		June	3.0-6.0	>6.0	---	---	---	---	None
		November	3.0-6.0	>6.0	---	---	---	---	None
		December	3.0-6.0	>6.0	---	---	---	---	None
Sy: Hobbs-----	B	April	---	---	---	---	---	Brief	Frequent
		May	---	---	---	---	---	Brief	Frequent
		June	---	---	---	---	---	Brief	Frequent
		July	---	---	---	---	---	Brief	Frequent
		August	---	---	---	---	---	Brief	Frequent
		September	---	---	---	---	---	Brief	Frequent
TfB: Thurman-----	A		---	---	---	---	---	---	---
ThA: Thurman-----	A		---	---	---	---	---	---	---
ThB: Thurman-----	A		---	---	---	---	---	---	---
Ty:			---	---	---	---	---	---	---

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro- logic group	Month	Soil Saturation		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
Almeria-----	D	January	0.0	>6.0	0.0-0.5	Long	---	---	None
		February	0.0	>6.0	0.0-0.5	Long	---	Brief	Occasional
		March	0.0	>6.0	0.0-0.5	Long	---	Brief	Occasional
		April	0.0	>6.0	0.0-0.5	Long	---	Brief	Occasional
		May	0.0	>6.0	0.0-0.5	Long	---	Brief	Occasional
		June	0.0	>6.0	0.0-0.5	Long	---	Brief	Occasional
		July	0.0	>6.0	---	---	---	Brief	Occasional
		November	0.0	>6.0	0.0-0.5	Long	---	---	None
		December	0.0	>6.0	0.0-0.5	Long	---	---	None
UsC: Uly-----	B		---	---	---	---	---	---	---
UsD: Uly-----	B		---	---	---	---	---	---	---
VaC: Valentine-----	A		---	---	---	---	---	---	---
VTD: Valentine-----	A		---	---	---	---	---	---	---
Thurman-----	A		---	---	---	---	---	---	---
W: Water-----	---		---	---	---	---	---	---	---

The following table gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A restrictive layer is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. Depth to top is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as low, moderate, or high, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as low, moderate, or high. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Map symbol and soil name	Restrictive layer				Potential for Frost action	Risk of corrosion	
	Kind	Depth to top In	Thickness In	Hardness		Uncoated Steel	Concrete
2Hb:							
Hobbs-----	---	---	---	---	Moderate	Low	Low
2ThA:							
Thurman-----	---	---	---	---	Low	Moderate	Low
2To:							
Almeria-----	---	---	---	---	Moderate	High	Low
AED:							
Arents, Earthen Dam-----	---	---	---	---	---	---	---
B:							
Psammments-----	---	---	---	---	Low	Low	Low
Boa:							
Boel-----	---	---	---	---	Moderate	High	Low
Bob:							
Boel-----	---	---	---	---	Moderate	High	Low
Boc:							
Boel-----	---	---	---	---	Moderate	High	Low
CbC:							
Coly-----	---	---	---	---	Moderate	High	Low
CbD:							
Coly-----	---	---	---	---	Moderate	High	Low
CUD:							
Coly-----	---	---	---	---	Moderate	High	Low
Uly-----	---	---	---	---	Moderate	High	Low
Da:							
Darr-----	---	---	---	---	Moderate	Low	Low
Db:							
Darr-----	---	---	---	---	Moderate	Low	Low
De:							
Detroit-----	---	---	---	---	Low	High	Low
Ea:							
Elsmere-----	---	---	---	---	Moderate	Moderate	Low
Gg:							
Gibbon-----	---	---	---	---	High	High	Low
Gibbon-----	---	---	---	---	High	High	Low
Gk:							
Grigston-----	---	---	---	---	Moderate	Low	Low
GP:							
Pits-----	---	---	---	---	Low	Low	Low
GsC3:							
Nuckolls Variant	---	---	---	---	Moderate	Low	Low
GsD3:							
Nuckolls Variant	---	---	---	---	Moderate	Low	Low
Ha:							
Hall-----	---	---	---	---	Moderate	Moderate	Low
Hb:							
Hord-----	---	---	---	---	Moderate	High	Low
HbA:							
Hord-----	---	---	---	---	Moderate	High	Low
HbB:							
Hord-----	---	---	---	---	Moderate	High	Low
Hd:							
Hord-----	---	---	---	---	Moderate	High	Low
Hg:							
Holdrege-----	---	---	---	---	Moderate	Low	Low
HgA:							
Holdrege-----	---	---	---	---	Moderate	Low	Low
HgB2:							
Holdrege-----	---	---	---	---	Moderate	Low	Low
HgC:							
Holdrege-----	---	---	---	---	Moderate	Low	Low
HpC2:							
Holdrege-----	---	---	---	---	Moderate	Low	Low
HpC3:							
Holdrege Variant	---	---	---	---	Moderate	Low	Low
Hs:							
Harney-----	---	---	---	---	Low	High	Low
Ia:							
Inavale-----	---	---	---	---	Low	Moderate	Low
If:							
Inavale-----	---	---	---	---	Low	Moderate	Low
Ig:							
Inavale-----	---	---	---	---	Low	Moderate	Low
In:							
Inavale-----	---	---	---	---	Low	Moderate	Low
INT:							
Aquolls-----	---	---	---	---	Low	---	---
Ks:							
Kenesaw-----	---	---	---	---	Moderate	Moderate	Low
KsB:							
Kenesaw-----	---	---	---	---	Moderate	Moderate	Low
KsC:							
Kenesaw-----	---	---	---	---	Moderate	Moderate	Low
KSz:							
Kenesaw-----	---	---	---	---	Moderate	Moderate	Low
Cozad-----	---	---	---	---	Moderate	High	High

Map symbol and soil name	Restrictive layer				Potential for Frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated Steel	Concrete
		In	In				
L:							
Loretto-----	---	---	---	---	Moderate	Low	Low
La:							
Lamo-----	---	---	---	---	High	High	Low
LB:							
Libory-----	---	---	---	---	Low	Moderate	Low
Boelus-----	---	---	---	---	Moderate	Moderate	Low
LC:							
Libory-----	---	---	---	---	Low	Moderate	Low
Boelus-----	---	---	---	---	Moderate	Moderate	Low
M:							
Fluvaquents----	---	---	---	---	Moderate	High	Low
M-W:							
Miscellaneous	---	---	---	---	---	---	---
Water-----							
NsD3:							
Nuckolls Variant	---	---	---	---	Moderate	Low	Low
Oa:							
Ovina-----	---	---	---	---	High	Moderate	Low
ObB:							
Ortello-----	---	---	---	---	Moderate	Low	Moderate
Oe:							
Ord-----	---	---	---	---	High	High	Low
Of:							
Ord-----	---	---	---	---	High	High	Low
Ok:							
O'Neill-----	---	---	---	---	Moderate	Moderate	Low
OrA:							
Ortello-----	---	---	---	---	Moderate	Moderate	Low
Ot:							
Ortello-----	---	---	---	---	Moderate	Moderate	Low
OtB:							
Ortello-----	---	---	---	---	Moderate	Moderate	Low
OxD:							
Ortello-----	---	---	---	---	Moderate	Moderate	Low
Coly-----	---	---	---	---	Moderate	High	Low
RB:							
Coly-----	---	---	---	---	Moderate	High	Low
Ru:							
Rusco-----	---	---	---	---	High	High	Low
Sm:							
Simeon-----	---	---	---	---	Low	Low	Low
SS:							
Silver Creek----	---	---	---	---	High	High	Low
Slickspots-----	---	---	---	---	Moderate	High	Low
Sy:							
Hobbs-----	---	---	---	---	Moderate	Low	Low
TfB:							
Thurman-----	---	---	---	---	Low	Low	Low
ThA:							
Thurman-----	---	---	---	---	Low	Low	Low
ThB:							
Thurman-----	---	---	---	---	Low	Low	Low
Ty:							
Almeria-----	---	---	---	---	Moderate	High	Low
UsC:							
Uly-----	---	---	---	---	Moderate	High	Low
UsD:							
Uly-----	---	---	---	---	Moderate	High	Low
VaC:							
Valentine-----	---	---	---	---	Low	Low	Low
VTD:							
Valentine-----	---	---	---	---	Low	Low	Low
Thurman-----	---	---	---	---	Low	Low	Low
W:							
Water-----	---	---	---	---	---	---	---

WATER MANAGEMENT
Howard County, Nebraska

The soils of the survey area are rated in the Water Management table according to limitations that affect their suitability for water management. Soils are rated for pond reservoir areas, drainage, irrigation, terraces and diversions, and grassed waterways. Restrictive features that affect each soil for the specified use is also provided in the table.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. Not limited indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. Slightly limited indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. Moderately limited indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. Limited indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but generally require special design, soil reclamation, or installation procedures that may result in additional expense. Fair performance and moderate to high maintenance can be expected. Very limited indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Limitation class terms, such as very limited or limited, etc., limitation ratings, and numerical ratings are shown for each soil feature listed. As many as three soil features may be listed for each soil component if applicable. The overall limitation rating for the soil component is based on the most severe limitation.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects traffic ability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and the potential for frost action. Excavating and grading and the stability of ditch banks are affected by depth to bedrock or to a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, and sulfur. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or to a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock or to a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a very limited hazard of wind erosion or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, which conduct surface water to outlets at a non-erosive velocity. Large stones, wetness, slope, and depth to bedrock or to a cemented pan affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, toxic substances such as salts and sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

WATER MANAGEMENT--Continued
Howard County, Nebraska

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Features affecting--			
	Drainage	Irrigation	Terraces and diversions	Grassed waterways
2Hb: Hobbs-----	Limitation: deep to water	Limitation: flooding	Limitation: erodes easily	Limitation: erodes easily
2ThA: Thurman-----	Limitation: deep to water	Limitation: fast intake droughty	Limitation: too sandy soil blowing	Limitation: rooting depth droughty
2To: Almeria-----	Limitation: flooding cutbanks cave	Limitation: wetness droughty	Limitation: too sandy wetness	Limitation: rooting depth wetness droughty
AED: Arents, Earthen Dam-----	---	---	---	---
B: Psammments-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: slope too sandy soil blowing	Limitation: rooting depth slope droughty
Boa: Boel-----	Limitation: cutbanks cave	Limitation: fast intake wetness droughty	Limitation: too sandy wetness soil blowing	Limitation: rooting depth droughty
Bob: Boel-----	Limitation: cutbanks cave	Limitation: wetness droughty	Limitation: too sandy wetness soil blowing	Limitation: rooting depth droughty
Boc: Boel-----	Limitation: cutbanks cave	Limitation: wetness droughty	Limitation: too sandy wetness	Limitation: rooting depth droughty
CbC: Coly-----	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily slope	Limitation: erodes easily slope
CbD: Coly-----	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily slope	Limitation: erodes easily slope
CUD: Coly-----	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily slope	Limitation: erodes easily slope
Uly-----	Limitation: deep to water	Limitation: slope	Limitation: erodes easily slope	Limitation: erodes easily slope
Da: Darr-----	Limitation: deep to water	Limitation: soil blowing	Limitation: too sandy soil blowing	Favorable
Db: Darr-----	Limitation: deep to water	Favorable	Limitation: too sandy	Favorable
De: Detroit-----	Limitation: deep to water	Limitation: erodes easily percs slowly	Limitation: erodes easily percs slowly	Limitation: erodes easily percs slowly
Ea: Elsmere-----	Limitation: cutbanks cave	Limitation: fast intake wetness droughty	Limitation: too sandy wetness soil blowing	Limitation: droughty
Gg: Gibbon-----	Limitation: frost action	Limitation: wetness	Limitation: wetness	Favorable
Gibbon-----	Limitation: frost action	Limitation: wetness	Limitation: wetness	Favorable
Gk: Grigston-----	Limitation: deep to water	Favorable	Favorable	Favorable
GP: Pits-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: slope too sandy	Limitation: rooting depth slope droughty
GsC3: Nuckolls Variant	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily slope	Limitation: erodes easily slope

WATER MANAGEMENT--Continued
Howard County, Nebraska

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Features affecting--			
	Drainage	Irrigation	Terraces and diversions	Grassed waterways
GsD3: Nuckolls Variant	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily slope	Limitation: erodes easily slope
Ha: Hall-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
Hb: Hord-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
HbA: Hord-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
HbB: Hord-----	Limitation: deep to water	Limitation: slope	Limitation: erodes easily	Limitation: erodes easily
Hd: Hord-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
Hg: Holdrege-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
HgA: Holdrege-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
HgB2: Holdrege-----	Limitation: deep to water	Limitation: slope	Limitation: erodes easily	Limitation: erodes easily
HgC: Holdrege-----	Limitation: deep to water	Limitation: slope	Limitation: erodes easily slope	Limitation: erodes easily slope
HpC2: Holdrege-----	Limitation: deep to water	Limitation: slope	Limitation: erodes easily slope	Limitation: erodes easily slope
HpC3: Holdrege Variant	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily slope	Limitation: erodes easily slope
Hs: Harney-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
Ia: Inavale-----	Limitation: deep to water	Limitation: droughty	Limitation: too sandy	Limitation: droughty
If: Inavale-----	Limitation: deep to water	Limitation: fast intake droughty	Limitation: too sandy soil blowing	Limitation: droughty
Ig: Inavale-----	Limitation: deep to water	Limitation: fast intake droughty	Limitation: too sandy soil blowing	Limitation: droughty
In: Inavale-----	Limitation: deep to water	Limitation: soil blowing droughty	Limitation: too sandy soil blowing	Limitation: droughty
INT: Aquolls-----	---	---	---	---
Ks: Kenesaw-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
KsB: Kenesaw-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
KsC: Kenesaw-----	Limitation: deep to water	Limitation: slope	Limitation: erodes easily slope	Limitation: erodes easily slope
KSz: Kenesaw-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
Cozad-----	Limitation: deep to water	Limitation: erodes easily excess sodium excess salt	Limitation: erodes easily	Limitation: erodes easily excess sodium
L: Loretto-----	Limitation: deep to water	Favorable	Limitation: erodes easily soil blowing	Limitation: erodes easily
La: Lamo-----	Limitation: flooding frost action	Limitation: wetness	Limitation: erodes easily wetness	Limitation: erodes easily wetness

WATER MANAGEMENT--Continued
Howard County, Nebraska

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Features affecting--			
	Drainage	Irrigation	Terraces and diversions	Grassed waterways
LB: Libory-----	Favorable	Limitation: wetness droughty	Limitation: erodes easily wetness soil blowing	Limitation: erodes easily droughty
Boelus-----	Limitation: deep to water	Limitation: fast intake soil blowing	Limitation: erodes easily soil blowing	Limitation: erodes easily
LC: Libory-----	Favorable	Limitation: wetness droughty	Limitation: erodes easily wetness soil blowing	Limitation: erodes easily droughty
Boelus-----	Limitation: deep to water	Limitation: fast intake soil blowing	Limitation: erodes easily soil blowing	Limitation: erodes easily
M: Fluvaquents----	Limitation: flooding ponding	Limitation: rooting depth ponding	Limitation: ponding	Limitation: rooting depth wetness
M-W: Miscellaneous Water-----	---	---	---	---
NsD3: Nuckolls Variant	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily slope	Limitation: erodes easily slope
Oa: Ovina-----	Limitation: frost action	Limitation: fast intake wetness	Limitation: wetness soil blowing	Limitation: wetness
ObB: Ortello-----	Limitation: deep to water	Limitation: fast intake soil blowing	Limitation: soil blowing	Favorable
Oe: Ord-----	Limitation: frost action cutbanks cave	Limitation: wetness	Limitation: too sandy wetness	Favorable
Of: Ord-----	Limitation: frost action cutbanks cave	Limitation: wetness soil blowing	Limitation: too sandy wetness soil blowing	Favorable
Ok: O'Neill-----	Limitation: deep to water	Limitation: droughty	Limitation: too sandy	Limitation: rooting depth droughty
OrA: Ortello-----	Limitation: deep to water	Limitation: soil blowing	Limitation: soil blowing	Favorable
Ot: Ortello-----	Limitation: deep to water	Favorable	Favorable	Favorable
OtB: Ortello-----	Limitation: deep to water	Limitation: slope	Favorable	Favorable
OxD: Ortello-----	Limitation: deep to water	Limitation: slope soil blowing	Limitation: slope soil blowing	Limitation: slope
Coly-----	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily slope	Limitation: erodes easily slope
RB: Coly-----	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily slope	Limitation: erodes easily slope
Ru: Rusco-----	Limitation: flooding frost action	Limitation: flooding wetness	Limitation: erodes easily wetness	Limitation: erodes easily
Sm: Simeon-----	Limitation: deep to water	Limitation: fast intake droughty	Limitation: too sandy soil blowing	Limitation: droughty
SS: Silver Creek----	Limitation: frost action percs slowly	Limitation: percs slowly wetness	Limitation: erodes easily wetness	Limitation: erodes easily excess sodium percs slowly
Slickspots-----	Limitation: deep to water	Limitation: excess sodium percs slowly	Favorable	Limitation: excess sodium percs slowly

WATER MANAGEMENT--Continued
Howard County, Nebraska

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Features affecting--			
	Drainage	Irrigation	Terraces and diversions	Grassed waterways
Sy: Hobbs-----	Limitation: deep to water	Limitation: flooding	Limitation: erodes easily	Limitation: erodes easily
TfB: Thurman-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: too sandy soil blowing	Limitation: rooting depth droughty
ThA: Thurman-----	Limitation: deep to water	Limitation: fast intake droughty	Limitation: too sandy soil blowing	Limitation: rooting depth droughty
ThB: Thurman-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: too sandy soil blowing	Limitation: rooting depth droughty
Ty: Almeria-----	Limitation: flooding ponding cutbanks cave	Limitation: ponding droughty	Limitation: too sandy ponding	Limitation: rooting depth wetness droughty
UsC: Uly-----	Limitation: deep to water	Limitation: slope	Limitation: erodes easily slope	Limitation: erodes easily slope
UsD: Uly-----	Limitation: deep to water	Limitation: slope	Limitation: erodes easily slope	Limitation: erodes easily slope
VaC: Valentine-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: slope too sandy soil blowing	Limitation: rooting depth slope droughty
VTD: Valentine-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: slope too sandy soil blowing	Limitation: rooting depth slope droughty
Thurman-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: slope too sandy soil blowing	Limitation: rooting depth slope droughty
W: Water-----	---	---	---	---

WATER MANAGEMENT--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Pond Reservoir Area		Embankments, Dikes, and Levees		Excavated Ponds (Aquifer- fed)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
2Hb: Hobbs-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.50	Very limited Deep to water	1.00
2ThA: Thurman-----	100	Very limited Seepage	1.00	Somewhat limited Seepage	0.98	Very limited Deep to water	1.00
2To: Almeria-----	100	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.22	Very limited Cutbanks cave	1.00
AED: Arents, Earthen Dam-	100	Not rated		Not rated		Not rated	
B: Psammments-----	100	Very limited Seepage	1.00	Somewhat limited Seepage	0.22	Very limited Deep to water	1.00
Boa: Boel-----	100	Very limited Seepage	1.00	Very limited Seepage Depth to saturated zone	1.00 0.95	Very limited Cutbanks cave Deep to water	1.00 0.02
Bob: Boel-----	100	Very limited Seepage	1.00	Very limited Seepage Depth to saturated zone	1.00 0.95	Very limited Cutbanks cave Deep to water	1.00 0.02
Boc: Boel-----	100	Very limited Seepage	1.00	Very limited Seepage Depth to saturated zone	1.00 0.95	Very limited Cutbanks cave Deep to water	1.00 0.02
CbC: Coly-----	100	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Deep to water	1.00
CbD: Coly-----	100	Somewhat limited Seepage Slope	0.70 0.15	Very limited Piping	1.00	Very limited Deep to water	1.00
CUD: Coly-----	60	Somewhat limited Seepage Slope	0.70 0.21	Very limited Piping	1.00	Very limited Deep to water	1.00
Uly-----	40	Somewhat limited Seepage Slope	0.70 0.21	Very limited Piping	1.00	Very limited Deep to water	1.00
Da: Darr-----	100	Very limited Seepage	1.00	Somewhat limited Seepage	0.26	Very limited Deep to water	1.00
Db: Darr-----	100	Very limited Seepage	1.00	Somewhat limited Seepage	0.22	Very limited Deep to water	1.00
De: Detroit-----	100	Somewhat limited Seepage	0.05	Somewhat limited Hard to pack	0.76	Very limited Deep to water	1.00
Ea: Elsmere-----	100	Very limited Seepage	1.00	Somewhat limited Depth to saturated zone Seepage	0.95 0.31	Very limited Cutbanks cave Deep to water	1.00 0.02
Gg: Gibbon-----	100	Very limited		Somewhat limited		Somewhat limited	

WATER MANAGEMENT--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Pond Reservoir Area		Embankments, Dikes, and Levees		Excavated Ponds (Aquifer- fed)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Gibbon-----	100	Seepage	1.00	Depth to saturated zone Piping	0.95	Cutbanks cave	0.10
					0.92	Deep to water	0.02
		Very limited Seepage	1.00	Somewhat limited Depth to saturated zone Piping	0.95	Somewhat limited Cutbanks cave	0.10
					0.92	Deep to water	0.02
Gk: Grigston-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.50	Very limited Deep to water	1.00
GP: Pits-----	100	Not rated		Not rated		Not rated	
GsC3: Nuckolls Variant----	100	Somewhat limited Seepage	0.04	Somewhat limited Piping	0.79	Very limited Deep to water	1.00
GsD3: Nuckolls Variant----	100	Somewhat limited Seepage Slope	0.04 0.01	Somewhat limited Piping	0.79	Very limited Deep to water	1.00
Ha: Hall-----	100	Somewhat limited Seepage	0.72	Somewhat limited Piping	0.27	Very limited Deep to water	1.00
Hb: Hord-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.66	Very limited Deep to water	1.00
HbA: Hord-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.66	Very limited Deep to water	1.00
HbB: Hord-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.66	Very limited Deep to water	1.00
Hd: Hord-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.73	Very limited Deep to water	1.00
Hg: Holdrege-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.09	Very limited Deep to water	1.00
HgA: Holdrege-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.09	Very limited Deep to water	1.00
HgB2: Holdrege-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.12	Very limited Deep to water	1.00
HgC: Holdrege-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.10	Very limited Deep to water	1.00
HpC2: Holdrege-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.23	Very limited Deep to water	1.00
HpC3: Holdrege Variant----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.53	Very limited Deep to water	1.00
Hs: Harney-----	100	Somewhat limited Seepage	0.70	Somewhat limited Hard to pack	0.51	Very limited Deep to water	1.00
Ia: Inavale-----	100	Very limited Seepage	1.00	Somewhat limited Seepage	0.22	Very limited Deep to water	1.00

WATER MANAGEMENT--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Pond Reservoir Area		Embankments, Dikes, and Levees		Excavated Ponds (Aquifer- fed)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
If: Inavale-----	100	Very limited Seepage	1.00	Somewhat limited Seepage	0.31	Very limited Deep to water	1.00
Ig: Inavale-----	100	Very limited Seepage	1.00	Somewhat limited Seepage	0.22	Very limited Deep to water	1.00
In: Inavale-----	100	Very limited Seepage	1.00	Somewhat limited Seepage	0.22	Very limited Deep to water	1.00
INT: Aquolls-----	100	Very limited Seepage	1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Somewhat limited Cutbanks cave	0.10
Ks: Kenesaw-----	100	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Deep to water	1.00
KsB: Kenesaw-----	100	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Deep to water	1.00
KsC: Kenesaw-----	100	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Deep to water	1.00
KSz: Kenesaw-----	70	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Deep to water	1.00
Cozad-----	30	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Somewhat limited Deep to water Slow refill Cutbanks cave Salty water	0.96 0.30 0.10 0.06
L: Loretto-----	100	Very limited Seepage	1.00	Somewhat limited Piping	0.54	Very limited Deep to water	1.00
La: Lamo-----	100	Somewhat limited Seepage	0.72	Very limited Depth to saturated zone Piping	1.00 0.09	Somewhat limited Slow refill Cutbanks cave Deep to water	0.28 0.10 0.00
LB: Libory-----	70	Somewhat limited Seepage	0.04	Somewhat limited Seepage Depth to saturated zone Piping	0.99 0.95 0.84	Somewhat limited Slow refill Cutbanks cave Deep to water	0.96 0.10 0.02
Boelus-----	30	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.98	Very limited Deep to water	1.00
LC: Libory-----	75	Somewhat limited Seepage	0.70	Somewhat limited Depth to saturated zone Piping Seepage	0.95 0.84 0.62	Somewhat limited Slow refill Cutbanks cave Deep to water	0.30 0.10 0.02
Boelus-----	25	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.98	Very limited Deep to water	1.00
M: Fluvaquents-----	100	Very limited Seepage	1.00	Very limited Depth to saturated zone Piping	1.00 1.00	Somewhat limited Cutbanks cave	0.10
M-W: Miscellaneous Water-	100	Not rated		Not rated		Not rated	

WATER MANAGEMENT--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Pond Reservoir Area		Embankments, Dikes, and Levees		Excavated Ponds (Aquifer- fed)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
NsD3: Nuckolls Variant----	100	Somewhat limited Seepage Slope	0.70 0.21	Somewhat limited Piping	0.42	Very limited Deep to water	1.00
Oa: Ovina-----	100	Very limited Seepage	1.00	Very limited Piping Depth to saturated zone Seepage	1.00 1.00 0.09	Somewhat limited Cutbanks cave Deep to water	0.10 0.00
ObB: Ortello-----	100	Very limited Seepage	1.00	Somewhat limited Seepage	0.49	Very limited Deep to water	1.00
Oe: Ord-----	100	Very limited Seepage	1.00	Somewhat limited Depth to saturated zone Seepage	0.95 0.22	Very limited Cutbanks cave Deep to water	1.00 0.02
Of: Ord-----	100	Very limited Seepage	1.00	Somewhat limited Depth to saturated zone Seepage	0.95 0.67	Very limited Cutbanks cave Deep to water	1.00 0.02
Ok: O'neill-----	100	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Deep to water	1.00
OrA: Ortello-----	100	Very limited Seepage	1.00	Somewhat limited Seepage	0.70	Very limited Deep to water	1.00
Ot: Ortello-----	100	Very limited Seepage	1.00	Somewhat limited Seepage	0.70	Very limited Deep to water	1.00
OtB: Ortello-----	100	Very limited Seepage	1.00	Somewhat limited Seepage	0.70	Very limited Deep to water	1.00
OxD: Ortello-----	60	Very limited Seepage Slope	1.00 0.21	Somewhat limited Seepage	0.08	Very limited Deep to water	1.00
Coly-----	40	Somewhat limited Seepage Slope	0.70 0.21	Very limited Piping	1.00	Very limited Deep to water	1.00
RB: Coly-----	100	Somewhat limited Slope Seepage	0.98 0.70	Very limited Piping	1.00	Very limited Deep to water	1.00
Ru: Rusco-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping Depth to saturated zone	0.77 0.43	Somewhat limited Slow refill Deep to water Cutbanks cave	0.30 0.25 0.10
Sm: Simeon-----	100	Very limited Seepage	1.00	Somewhat limited Seepage	0.98	Very limited Deep to water	1.00
SS: Silver Creek-----	65	Somewhat limited Seepage	0.70	Somewhat limited Depth to saturated zone Piping	0.95 0.48	Somewhat limited Slow refill Cutbanks cave Deep to water Salty water	0.30 0.10 0.02 0.01
Slickspots-----	35	Somewhat limited		Very limited		Somewhat limited	

WATER MANAGEMENT--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Pond Reservoir Area		Embankments, Dikes, and Levees		Excavated Ponds (Aquifer- fed)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
		Seepage	0.05	Piping Salinity	1.00 0.01	Deep to water Slow refill Salty water Cutbanks cave	0.96 0.95 0.28 0.10
Sy: Hobbs-----	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.88	Very limited Deep to water	1.00
TfB: Thurman-----	100	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Deep to water	1.00
ThA: Thurman-----	100	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Deep to water	1.00
ThB: Thurman-----	100	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Deep to water	1.00
Ty: Almeria-----	100	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.22	Very limited Cutbanks cave	1.00
UsC: Uly-----	100	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Deep to water	1.00
UsD: Uly-----	100	Somewhat limited Seepage Slope	0.70 0.01	Very limited Piping	1.00	Very limited Deep to water	1.00
VaC: Valentine-----	100	Very limited Seepage Slope	1.00 0.01	Very limited Seepage	1.00	Very limited Deep to water	1.00
VTD: Valentine-----	65	Very limited Seepage Slope	1.00 0.01	Very limited Seepage	1.00	Very limited Deep to water	1.00
Thurman-----	35	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Deep to water	1.00
W: Water-----	100	Not rated		Not rated		Not rated	

SANITARY FACILITIES
Howard County, Nebraska

Sanitary Facilities

The following tables show the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. Not limited indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. Slightly limited indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. Somewhat limited indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. Very limited indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A trench sanitary landfill is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

SANITARY FACILITIES
Howard County, Nebraska

In an area sanitary landfill, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

SANITARY FACILITIES--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
2Hb: Hobbs-----	100	Very limited Flooding Restricted permeability	1.00 0.50	Very limited Flooding Seepage	1.00 0.50
2ThA: Thurman-----	100	Very limited Filtering capacity	1.00	Very limited Seepage Slope	1.00 0.00
2To: Almeria-----	100	Very limited Flooding Depth to saturated zone Filtering capacity	1.00 1.00 1.00	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 1.00
AED: Arents, Earthen Dam-	100	Not rated		Not rated	
B: Psammets-----	100	Somewhat limited Slope	0.16	Very limited Slope	1.00
Boa: Boel-----	100	Very limited Depth to saturated zone Filtering capacity Flooding	1.00 1.00 0.40	Very limited Seepage Depth to saturated zone Flooding	1.00 1.00 0.40
Bob: Boel-----	100	Very limited Depth to saturated zone Filtering capacity	1.00 1.00	Very limited Seepage Depth to saturated zone	1.00 1.00
Boc: Boel-----	100	Very limited Depth to saturated zone Filtering capacity	1.00 1.00	Very limited Seepage Depth to saturated zone	1.00 1.00
CbC: Coly-----	100	Somewhat limited Restricted permeability Slope	0.50 0.00	Very limited Slope Seepage	1.00 0.50
CbD: Coly-----	100	Very limited Slope Restricted permeability	1.00 0.50	Very limited Slope Seepage	1.00 0.50
CUD: Coly-----	60	Very limited Slope Restricted permeability	1.00 0.50	Very limited Slope Seepage	1.00 0.50
Uly-----	40	Very limited Slope Restricted permeability	1.00 0.50	Very limited Slope Seepage	1.00 0.50
Da: Darr-----	100	Very limited Filtering capacity	1.00	Very limited Seepage	1.00
Db: Darr-----	100	Very limited Filtering capacity	1.00	Very limited Seepage	1.00
De: Detroit-----	100	Very limited Restricted permeability	1.00	Not limited	
Ea: Elsmere-----	100	Very limited Depth to saturated zone Filtering capacity	1.00 1.00	Very limited Seepage Depth to saturated zone	1.00 1.00

SANITARY FACILITIES--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Gg: Gibbon-----	100	Very limited Depth to saturated zone Restricted permeability	1.00 0.50	Very limited Depth to saturated zone Seepage	1.00 1.00
Gibbon-----	100	Very limited Depth to saturated zone Restricted permeability	1.00 0.50	Very limited Depth to saturated zone Seepage	1.00 1.00
Gk: Grigston-----	100	Somewhat limited Restricted permeability	0.50	Somewhat limited Seepage	0.50
GP: Pits-----	100	Not rated		Not rated	
GsC3: Nuckolls Variant----	100	Very limited Restricted permeability Slope	1.00 0.04	Very limited Slope	1.00
GsD3: Nuckolls Variant----	100	Very limited Restricted permeability Slope	1.00 0.84	Very limited Slope	1.00
Ha: Hall-----	100	Very limited Restricted permeability	1.00	Somewhat limited Seepage	0.53
Hb: Hord-----	100	Somewhat limited Restricted permeability	0.50	Somewhat limited Seepage	0.50
HbA: Hord-----	100	Somewhat limited Restricted permeability	0.50	Somewhat limited Seepage Slope	0.50 0.00
HbB: Hord-----	100	Somewhat limited Restricted permeability	0.50	Somewhat limited Seepage Slope	0.50 0.33
Hd: Hord-----	100	Somewhat limited Restricted permeability	0.50	Somewhat limited Seepage	0.50
Hg: Holdrege-----	100	Very limited Restricted permeability	1.00	Somewhat limited Seepage	0.50
HgA: Holdrege-----	100	Very limited Restricted permeability	1.00	Somewhat limited Seepage Slope	0.50 0.00
HgB2: Holdrege-----	100	Very limited Restricted permeability	1.00	Somewhat limited Seepage Slope	0.50 0.33
HgC: Holdrege-----	100	Very limited Restricted permeability Slope	1.00 0.00	Very limited Slope Seepage	1.00 0.50
HpC2: Holdrege-----	100	Very limited Restricted permeability Slope	1.00 0.00	Very limited Slope Seepage	1.00 0.50
HpC3: Holdrege Variant----	100	Very limited Restricted permeability Slope	1.00 0.00	Very limited Slope Seepage	1.00 0.50

SANITARY FACILITIES--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Hs: Harney-----	100	Very limited Restricted permeability	1.00	Somewhat limited Seepage	0.50
Ia: Inavale-----	100	Very limited Filtering capacity	1.00	Very limited Seepage	1.00
If: Inavale-----	100	Very limited Filtering capacity	1.00	Slope	0.00
Ig: Inavale-----	100	Very limited Filtering capacity	1.00	Very limited Seepage	1.00
In: Inavale-----	100	Very limited Filtering capacity	1.00	Slope	0.09
INT: Aquolls-----	100	Very limited Depth to saturated zone Ponding	1.00	Very limited Depth to saturated zone Ponding	1.00
Ks: Kenesaw-----	100	Somewhat limited Restricted permeability	0.50	Somewhat limited Seepage	0.50
KsB: Kenesaw-----	100	Somewhat limited Restricted permeability	0.50	Somewhat limited Seepage	0.50
KsC: Kenesaw-----	100	Somewhat limited Restricted permeability Slope	0.50 0.00	Slope	0.00
KSz: Kenesaw-----	70	Somewhat limited Restricted permeability	0.50	Very limited Slope	1.00
Cozad-----	30	Somewhat limited Depth to saturated zone Restricted permeability	0.84 0.50	Seepage	0.50
L: Loretto-----	100	Not limited		Somewhat limited Seepage	0.50
La: Lamo-----	100	Very limited Flooding Depth to saturated zone Restricted permeability	1.00 1.00 0.47	Somewhat limited Seepage	0.50
LB: Libory-----	70	Very limited Depth to saturated zone Restricted permeability	1.00 1.00	Very limited Seepage	1.00
Boelus-----	30	Somewhat limited Restricted permeability	0.50	Depth to saturated zone Slope	0.00
LC: Libory-----	75	Very limited Depth to saturated zone Restricted permeability	1.00 0.50	Very limited Seepage	1.00
Boelus-----	25	Somewhat limited		Depth to saturated zone Slope	1.00 0.00
				Very limited	

SANITARY FACILITIES--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
M: Fluvaquents-----	100	Restricted permeability	0.50	Seepage	1.00
		Very limited Flooding	1.00	Very limited Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
M-W: Miscellaneous Water-	100	Not rated		Not rated	
NsD3: Nuckolls Variant----	100	Very limited Slope	1.00	Very limited Slope	1.00
		Restricted permeability	1.00	Seepage	0.50
Oa: Ovina-----	100	Very limited Depth to saturated zone	1.00	Very limited Seepage	1.00
		Restricted permeability	0.50	Depth to saturated zone	1.00
				Slope	0.00
ObB: Ortello-----	100	Not limited		Very limited Seepage	1.00
				Slope	0.00
Oe: Ord-----	100	Very limited Depth to saturated zone	1.00	Very limited Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
Of: Ord-----	100	Very limited Depth to saturated zone	1.00	Very limited Seepage	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00
Ok: O'Neill-----	100	Very limited Filtering capacity	1.00	Very limited Seepage	1.00
				Slope	0.00
OrA: Ortello-----	100	Very limited Filtering capacity	1.00	Very limited Seepage	1.00
Ot: Ortello-----	100	Very limited Filtering capacity	1.00	Very limited Seepage	1.00
OtB: Ortello-----	100	Very limited Filtering capacity	1.00	Very limited Seepage	1.00
				Slope	0.33
OxD: Ortello-----	60	Very limited Slope	1.00	Very limited Slope	1.00
				Seepage	1.00
Coly-----	40	Very limited Slope	1.00	Very limited Slope	1.00
		Restricted permeability	0.50	Seepage	0.50
RB: Coly-----	100	Very limited Slope	1.00	Very limited Slope	1.00
		Restricted permeability	0.50	Seepage	0.50
Ru: Rusco-----	100	Very limited Flooding	1.00	Very limited Flooding	1.00
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.50
Sm: Simeon-----	100	Very limited Filtering capacity	1.00	Very limited Seepage	1.00

SANITARY FACILITIES--Continued
Howard County, Nebraska

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Map symbol and soil name	Pct of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
SS: Silver Creek-----	65	Very limited Restricted permeability Depth to saturated zone	1.00 1.00	Slope Very limited Depth to saturated zone Seepage	0.00 1.00 0.50
Slickspots-----	35	Very limited Restricted permeability Depth to saturated zone	1.00 0.84	Somewhat limited Depth to saturated zone	0.17
Sy: Hobbs-----	100	Very limited Flooding Restricted permeability	1.00 0.50	Very limited Flooding Seepage	1.00 0.50
TfB: Thurman-----	100	Very limited Filtering capacity	1.00	Very limited Seepage Slope	1.00 0.33
ThA: Thurman-----	100	Very limited Filtering capacity	1.00	Very limited Seepage Slope	1.00 0.00
ThB: Thurman-----	100	Very limited Filtering capacity	1.00	Very limited Seepage Slope	1.00 0.33
Ty: Almeria-----	100	Very limited Flooding Depth to saturated zone Filtering capacity	1.00 1.00 1.00	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 1.00
UsC: Uly-----	100	Somewhat limited Restricted permeability Slope	0.50 0.00	Very limited Slope Seepage	1.00 0.50
UsD: Uly-----	100	Somewhat limited Slope Restricted permeability	0.84 0.50	Very limited Slope Seepage	1.00 0.50
VaC: Valentine-----	100	Very limited Filtering capacity Slope	1.00 0.84	Very limited Seepage Slope	1.00 1.00
VTD: Valentine-----	65	Very limited Filtering capacity Slope	1.00 0.84	Very limited Seepage Slope	1.00 1.00
Thurman-----	35	Very limited Filtering capacity Slope	1.00 0.04	Very limited Seepage Slope	1.00 1.00
W: Water-----	100	Not rated		Not rated	

SANITARY FACILITIES--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
2Hb: Hobbs-----	100	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Hard to compact	1.00
2ThA: Thurman-----	100	Very limited Seepage Too Sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Seepage Too Sandy	1.00 0.50
2To: Almeria-----	100	Very limited Flooding Depth to saturated zone Seepage Too Sandy	1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Too Sandy Seepage Depth to saturated zone	1.00 1.00 1.00
AED: Arents, Earthen Dam-	100	Not rated		Not rated		Not rated	
B: Psamments-----	100	Very limited Seepage Too Sandy Slope	1.00 1.00 0.16	Very limited Seepage Slope	1.00 0.16	Very limited Too Sandy Seepage Slope	1.00 1.00 0.16
Boa: Boel-----	100	Very limited Depth to saturated zone Seepage Too Sandy Flooding	1.00 1.00 1.00 1.00 0.40	Very limited Depth to saturated zone Seepage Flooding	1.00 1.00 0.40	Very limited Too Sandy Seepage Depth to saturated zone	1.00 1.00 0.68
Bob: Boel-----	100	Very limited Depth to saturated zone Seepage Too Sandy	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Too Sandy Seepage Depth to saturated zone	1.00 1.00 0.68
Boc: Boel-----	100	Very limited Depth to saturated zone Seepage Too Sandy	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Too Sandy Seepage Depth to saturated zone	1.00 1.00 0.68
CbC: Coly-----	100	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00
CbD: Coly-----	100	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
CUD: Coly-----	60	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Uly-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Da: Darr-----	100	Very limited Seepage Too Sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Too Sandy Seepage	1.00 1.00
Db: Darr-----	100	Very limited Seepage Too Sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Too Sandy Seepage	1.00 1.00
De: Detroit-----	100	Very limited Too clayey	1.00	Not limited		Very limited Too clayey Hard to compact	1.00 1.00
Ea: Elsmere-----	100	Very limited Depth to saturated zone Seepage Too Sandy	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Too Sandy Seepage Depth to saturated zone	1.00 1.00 0.68
Gg: Gibbon-----	100	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.68
Gibbon-----	100	Very limited		Very limited		Somewhat limited	

SANITARY FACILITIES--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.68
Gk: Grigston-----	100	Not limited	1.00	Not limited		Not limited	
GP: Pits-----	100	Not rated		Not rated		Not rated	
GsC3: Nuckolls Variant----	100	Somewhat limited Too clayey Slope	0.50 0.04	Somewhat limited Slope	0.04	Somewhat limited Too clayey Slope	0.50 0.04
GsD3: Nuckolls Variant----	100	Somewhat limited Slope Too clayey	0.84 0.50	Somewhat limited Slope	0.84	Somewhat limited Slope Too clayey	0.84 0.50
Ha: Hall-----	100	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50
Hb: Hord-----	100	Not limited		Not limited		Not limited	
HbA: Hord-----	100	Not limited		Not limited		Not limited	
HbB: Hord-----	100	Not limited		Not limited		Not limited	
Hd: Hord-----	100	Not limited		Not limited		Not limited	
Hg: Holdrege-----	100	Somewhat limited Too clayey	0.50	Not limited		Very limited Hard to compact Too clayey	1.00 0.50
HgA: Holdrege-----	100	Somewhat limited Too clayey	0.50	Not limited		Very limited Hard to compact Too clayey	1.00 0.50
HgB2: Holdrege-----	100	Somewhat limited Too clayey	0.50	Not limited		Very limited Hard to compact Too clayey	1.00 0.50
HgC: Holdrege-----	100	Somewhat limited Too clayey Slope	0.50 0.00	Somewhat limited Slope	0.00	Very limited Hard to compact Too clayey Slope	1.00 0.50 0.00
HpC2: Holdrege-----	100	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00
HpC3: Holdrege Variant----	100	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00
Hs: Harney-----	100	Somewhat limited Too clayey	0.50	Not limited		Very limited Hard to compact Too clayey	1.00 0.50
Ia: Inavale-----	100	Very limited Seepage Too Sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Too Sandy Seepage	1.00 1.00
If: Inavale-----	100	Very limited Seepage Too Sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Too Sandy Seepage	1.00 1.00
Ig: Inavale-----	100	Very limited Seepage Too Sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Too Sandy Seepage	1.00 1.00
In: Inavale-----	100	Very limited Seepage Too Sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Too Sandy Seepage	1.00 1.00
INT: Aguolls-----	100	Very limited Depth to saturated zone Ponding Seepage	1.00 1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
Ks: Kenesaw-----	100	Not limited		Not limited		Not limited	

SANITARY FACILITIES--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
KsB: Kenesaw-----	100	Not limited		Not limited		Not limited	
KsC: Kenesaw-----	100	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00
KSz: Kenesaw-----	70	Not limited		Not limited		Not limited	
Cozad-----	30	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Not limited Not limited	
L: Loretto-----	100	Very limited Seepage	1.00	Very limited Seepage	1.00	Somewhat limited Seepage	0.21
La: Lamo-----	100	Very limited Flooding Depth to saturated zone Too clayey	1.00 1.00 0.50	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Hard to compact Depth to saturated zone Too clayey	1.00 0.86 0.50
LB: Libory-----	70	Very limited Depth to saturated zone Too clayey	1.00 0.50	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone Too clayey	0.68 0.50
Boelus-----	30	Not limited		Not limited		Not limited	
LC: Libory-----	75	Very limited Depth to saturated zone Too clayey	1.00 0.50	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone Too clayey	0.68 0.50
Boelus-----	25	Not limited		Not limited		Not limited	
M: Fluvaquents-----	100	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 0.16
M-W: Miscellaneous Water-	100	Not rated		Not rated		Not rated	
NsD3: Nuckolls Variant----	100	Very limited Slope Too clayey	1.00 0.50	Very limited Slope	1.00	Very limited Slope Too clayey	1.00 0.50
Oa: Ovina-----	100	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Somewhat limited Depth to saturated zone Seepage	0.86 0.50
ObB: Ortello-----	100	Very limited Seepage	1.00	Very limited Seepage	1.00	Somewhat limited Seepage	0.50
Oe: Ord-----	100	Very limited Depth to saturated zone Seepage Too Sandy	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Too Sandy Seepage Depth to saturated zone	1.00 1.00 0.68
Of: Ord-----	100	Very limited Depth to saturated zone Seepage Too Sandy	1.00 1.00 1.00	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Too Sandy Seepage Depth to saturated zone	1.00 1.00 0.68
Ok: O'Neill-----	100	Very limited Seepage Too Sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Too Sandy Seepage	1.00 1.00
OrA: Ortello-----	100	Very limited Seepage Too Sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Seepage Too Sandy	1.00 0.50
Ot: Ortello-----	100	Very limited Seepage Too Sandy	1.00 1.00	Very limited Seepage	1.00	Very limited Seepage Too Sandy	1.00 0.50
OtB: Ortello-----	100	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Seepage	1.00

SANITARY FACILITIES--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
		Too Sandy	1.00			Too Sandy	0.50
OxD: Ortello-----	60	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Slope	1.00
		Slope	1.00	Slope	1.00	Seepage	0.50
Coly-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
RB: Coly-----	100	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Ru: Rusco-----	100	Very limited Flooding	1.00	Very limited Flooding	1.00	Somewhat limited Depth to saturated zone	0.09
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
Sm: Simeon-----	100	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Too Sandy	1.00
		Too Sandy	1.00			Seepage	1.00
SS: Silver Creek-----	65	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.68
Slickspots-----	35	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Sodium content	1.00
		Sodium content	1.00			Hard to compact	1.00
		Too clayey	0.50			Too clayey	0.50
Sy: Hobbs-----	100	Very limited Flooding	1.00	Very limited Flooding	1.00	Not limited	
TfB: Thurman-----	100	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Too Sandy	1.00
		Too Sandy	1.00			Seepage	1.00
ThA: Thurman-----	100	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Too Sandy	1.00
		Too Sandy	1.00			Seepage	1.00
ThB: Thurman-----	100	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Too Sandy	1.00
		Too Sandy	1.00			Seepage	1.00
Ty: Almeria-----	100	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too Sandy	1.00
		Seepage	1.00	Seepage	1.00		
		Too Sandy	1.00			Seepage	1.00
UsC: Uly-----	100	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00
UsD: Uly-----	100	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84
VaC: Valentine-----	100	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Too Sandy	1.00
		Too Sandy	1.00	Slope	0.84	Seepage	1.00
		Slope	0.84			Slope	0.84
VTD: Valentine-----	65	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Too Sandy	1.00
		Too Sandy	1.00	Slope	0.84	Seepage	1.00
		Slope	0.84			Slope	0.84
Thurman-----	35	Very limited Seepage	1.00	Very limited Seepage	1.00	Very limited Too Sandy	1.00
		Too Sandy	1.00	Slope	0.04	Seepage	1.00
		Slope	0.04			Slope	0.04
W: Water-----	100	Not rated		Not rated		Not rated	

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The nature of the soil is also important in the application of organic wastes and wastewater to land as fertilizers and irrigation; it is also important when the soil is used as a medium for treatment and disposal of these wastes. Favorable soil properties are required to prevent environmental damage.

The use of organic wastes and wastewater as production resources will result in energy conservation, prevent the waste of these important resources, and prevent problems associated with their disposal. Where disposal is the goal, and a maximum amount is disposed in a minimum area to hold costs to a minimum, risk of environmental damage is the principal constraint. Where the reuse goal is pursued, and a minimum amount is applied to a maximum area to obtain the greatest benefit, environmental damage is unlikely.

Interpretations developed for waste management may include ratings for (1) manure and food processing wastes; (2) municipal sewage sludge; (3) irrigation use of wastewater; or (4) treatment of wastewater by the slow rate process, overland flow process, or rapid infiltration process. If available, these should be located in this subsection.

Soil properties are important considerations in areas where soils are used as sites for the treatment and disposal of organic waste and wastewater. Selection of soils with properties that favor waste management can help to prevent environmental damage.

The Ag-Waste tables show the degree and kind of soil limitations affecting the treatment of agricultural waste, including municipal and food-processing wastewater and effluent from lagoons or storage ponds. Municipal wastewater is the waste stream from a municipality. It contains domestic waste and may contain industrial waste. It may have received primary or secondary treatment. It is rarely untreated sewage. Food-processing wastewater results from the preparation of fruits, vegetables, milk, cheese, and meats for public consumption. In places it is high in content of sodium and chloride. In the context of these tables, the effluent in lagoons and storage ponds is from facilities used to treat or store food-processing wastewater or domestic or animal waste. Domestic and food-processing wastewater is very dilute, and the effluent from the facilities that treat or store it commonly is very low in content of carbonaceous and nitrogenous material; the content of nitrogen commonly ranges from 10 to 30 milligrams per liter. The wastewater from animal waste treatment lagoons or storage ponds, however, has much higher concentrations of these materials, mainly because the manure has not been diluted as much as the domestic waste. The content of nitrogen in this wastewater generally ranges from 50 to 2,000 milligrams per liter. When wastewater is applied, checks should be made to ensure that nitrogen, phosphorus, heavy metals, and salts are not added in excessive amounts.

The ratings in the tables are for waste management systems that not only dispose of and treat organic waste or wastewater but also are beneficial to crops (application of manure and food-processing waste, application of sewage sludge, and disposal of wastewater by irrigation) and for waste management systems that are designed only for the purpose of wastewater disposal and treatment (overland flow of wastewater, rapid infiltration of wastewater, and slow rate treatment of wastewater).

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect agricultural waste management. Not limited indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. Slightly limited indicates that the soil has features that are generally favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. Somewhat limited indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. Very limited indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Application of manure and food-processing waste not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied. Manure is the excrement of livestock and poultry, and food-processing waste is damaged fruit and vegetables and the peelings, stems, leaves, pits, and soil particles removed in food preparation. The manure and food-processing waste are either solid, slurry, or liquid. Their nitrogen content varies. A high content of nitrogen limits the application rate. Toxic or otherwise dangerous wastes, such as those mixed with the lye used in food processing, are not considered in the ratings.

The ratings are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the waste is applied, and the method by which the waste is applied. The properties that affect absorption include permeability, depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, and available water capacity. The properties that affect plant growth and microbial activity include reaction, the sodium adsorption ratio, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood that wind erosion or water erosion will transport the waste material from the application site. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste. Permanently frozen soils are unsuitable for waste treatment.

Application of sewage sludge not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied. In the context of this table, sewage sludge is the residual product of the treatment of municipal sewage. The solid component consists mainly of cell mass, primarily bacteria cells that developed during secondary treatment and have incorporated soluble organics into their own bodies. The sludge has small amounts of sand, silt, and other solid debris. The content of nitrogen varies. Some sludge has constituents that are toxic to plants or hazardous to the food chain, such as heavy metals and exotic organic compounds, and should be analyzed chemically prior to use.

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The content of water in the sludge ranges from about 98 percent to less than 40 percent. The sludge is considered liquid if it is more than about 90 percent water, slurry if it is about 50 to 90 percent water, and solid if it is less than about 50 percent water.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the sludge is applied, and the method by which the sludge is applied. The properties that affect absorption, plant growth, and microbial activity include permeability, depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, available water capacity, reaction, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood that wind erosion or water erosion will transport the waste material from the application site. Stones, cobbles, a water table, ponding, and flooding can hinder the application of sludge. Permanently frozen soils are unsuitable for waste treatment.

Disposal of wastewater by irrigation not only disposes of municipal wastewater and wastewater from food-processing plants, lagoons, and storage ponds but also can improve crop production by increasing the amount of water available to crops. The ratings in the table are based on the soil properties that affect the design, construction, management, and performance of the irrigation system. The properties that affect design and management include the sodium adsorption ratio, depth to a water table, ponding, available water capacity, permeability, slope, and flooding. The properties that affect construction include stones, cobbles, depth to bedrock or a cemented pan, depth to a water table, and ponding.

The properties that affect performance include depth to bedrock or a cemented pan, bulk density, the sodium adsorption ratio, salinity, reaction, and the cation-exchange capacity, which is used to estimate the capacity of a soil to adsorb heavy metals. Permanently frozen soils are not suitable for disposal of wastewater by irrigation.

See the National Soil Handbook, September 1992, Part 620, for criteria used in rating soils for sanitary facilities and waste management.

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(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Application of manure and food- processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
2Hb: Hobbs-----	100	Somewhat limited Flooding	0.60	Very limited Flooding	1.00	Somewhat limited Flooding	0.60
2Tha: Thurman-----	100	Very limited Filtering capacity Leaching limitation	1.00 0.45	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00
2To: Almeria-----	100	Very limited Depth to saturated zone Filtering capacity Flooding Runoff limitation	1.00 1.00 0.60 0.40	Very limited Depth to saturated zone Flooding Filtering capacity	1.00 1.00 1.00	Very limited Depth to saturated zone Filtering capacity Flooding	1.00 1.00 0.60
AED: Arents, Earthen Dam-	100	Not rated		Not rated		Not rated	
B: Psammets-----	100	Very limited Filtering capacity Droughty Leaching limitation Slope Too acid	1.00 0.65 0.45 0.16 0.02	Very limited Filtering capacity Droughty Slope Too acid	1.00 0.65 0.16 0.07	Very limited Too steep for surface application Filtering capacity Droughty Too steep for sprinkler application Too acid	1.00 1.00 0.65 0.39 0.07
Boa: Boel-----	100	Very limited Filtering capacity Depth to saturated zone Leaching limitation	1.00 0.95 0.45	Very limited Filtering capacity Depth to saturated zone Flooding	1.00 0.95 0.40	Very limited Filtering capacity Depth to saturated zone	1.00 0.95
Bob: Boel-----	100	Very limited Filtering capacity Depth to saturated zone Leaching limitation	1.00 0.95 0.45	Very limited Filtering capacity Depth to saturated zone	1.00 0.95	Very limited Filtering capacity Depth to saturated zone	1.00 0.95
Boc: Boel-----	100	Very limited Filtering capacity Depth to saturated zone Leaching limitation	1.00 0.95 0.45	Very limited Filtering capacity Depth to saturated zone	1.00 0.95	Very limited Filtering capacity Depth to saturated zone	1.00 0.95
CbC: Coly-----	100	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00	Very limited Too steep for surface application Too steep for sprinkler application	1.00 0.10
CbD: Coly-----	100	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Too steep for surface application Too steep for sprinkler application	1.00 1.00
CUD: Coly-----	60	Very limited		Very limited		Very limited	

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(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Uly-----	40	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
						Too steep for sprinkler application	1.00
		Very limited Slope	1.00	Very limited Slope	1.00	Very limited Too steep for surface application	1.00
		Restricted permeability	0.41	Restricted permeability	0.31	Too steep for sprinkler application	1.00
Da:						Restricted permeability	0.31
Darr-----	100	Very limited Filtering capacity Droughty	1.00	Very limited Filtering capacity Droughty	1.00	Very limited Filtering capacity Droughty	1.00
Db:			0.13		0.13		0.13
Darr-----	100	Very limited Filtering capacity Droughty	1.00	Very limited Filtering capacity Droughty	1.00	Very limited Filtering capacity Droughty	1.00
De:			0.00		0.00		0.00
Detroit-----	100	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00
Ea:							
Elsmere-----	100	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00
		Depth to saturated zone	0.95	Depth to saturated zone	0.95	Depth to saturated zone	0.95
		Droughty	0.57	Droughty	0.57	Droughty	0.57
		Leaching limitation	0.45				
Gg:							
Gibbon-----	100	Somewhat limited Depth to saturated zone	0.95	Somewhat limited Depth to saturated zone	0.95	Somewhat limited Depth to saturated zone	0.95
Gibbon-----	100	Somewhat limited Depth to saturated zone	0.95	Somewhat limited Depth to saturated zone	0.95	Somewhat limited Depth to saturated zone	0.95
Gk:							
Grigston-----	100	Somewhat limited Restricted permeability	0.41	Somewhat limited Restricted permeability	0.31	Somewhat limited Restricted permeability	0.31
GP:							
Pits-----	100	Not rated		Not rated		Not rated	
GsC3:							
Nuckolls Variant----	100	Somewhat limited Restricted permeability	0.41	Somewhat limited Restricted permeability	0.31	Very limited Too steep for surface application	1.00
		Slope	0.04	Slope	0.04	Restricted permeability	0.31
						Too steep for sprinkler application	0.22
GsD3:							
Nuckolls Variant----	100	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84	Very limited Too steep for surface application	1.00
		Restricted permeability	0.41	Restricted permeability	0.31	Too steep for sprinkler application	0.89
						Restricted permeability	0.31
Ha:							
Hall-----	100	Somewhat limited		Somewhat limited		Somewhat limited	

AGRICULTURAL WASTE MANAGEMENT--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Application of manure and food- processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Hb:		Restricted permeability	0.41	Restricted permeability	0.31	Restricted permeability	0.31
Hord-----	100	Not limited		Not limited		Not limited	
HbA:							
Hord-----	100	Not limited		Not limited		Not limited	
HbB:							
Hord-----	100	Not limited		Not limited		Somewhat limited Too steep for surface application	0.08
Hd:							
Hord-----	100	Not limited		Not limited		Not limited	
Hg:							
Holdrege-----	100	Somewhat limited Restricted permeability	0.41	Somewhat limited Restricted permeability	0.31	Somewhat limited Restricted permeability	0.31
HgA:							
Holdrege-----	100	Somewhat limited Restricted permeability	0.41	Somewhat limited Restricted permeability	0.31	Somewhat limited Restricted permeability	0.31
HgB2:							
Holdrege-----	100	Somewhat limited Restricted permeability	0.41	Somewhat limited Restricted permeability	0.31	Somewhat limited Restricted permeability Too steep for surface application	0.31 0.08
HgC:							
Holdrege-----	100	Somewhat limited Restricted permeability	0.41	Somewhat limited Restricted permeability	0.31	Very limited Too steep for surface application	1.00
		Slope	0.00	Slope	0.00	Restricted permeability Too steep for sprinkler application	0.31 0.10
HpC2:							
Holdrege-----	100	Somewhat limited Restricted permeability	0.41	Somewhat limited Restricted permeability	0.31	Very limited Too steep for surface application	1.00
		Slope	0.00	Slope	0.00	Restricted permeability Too steep for sprinkler application	0.31 0.10
HpC3:							
Holdrege Variant----	100	Somewhat limited Restricted permeability	0.41	Somewhat limited Restricted permeability	0.31	Very limited Too steep for surface application	1.00
		Slope	0.00	Slope	0.00	Restricted permeability Too steep for sprinkler application	0.31 0.10
Hs:							
Harney-----	100	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00
Ia:							
Inavale-----	100	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00
		Leaching limitation	0.45	Droughty	0.04	Droughty	0.04
		Droughty	0.04				
If:							
Inavale-----	100	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00
		Leaching limitation	0.45	Droughty	0.26	Droughty	0.26
		Droughty	0.26			Too steep for surface application	0.00

AGRICULTURAL WASTE MANAGEMENT--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Application of manure and food- processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ig: Inavale-----	100	Very limited Filtering capacity Leaching limitation Droughty	1.00 0.45 0.16	Very limited Filtering capacity Droughty	1.00 0.16	Very limited Filtering capacity Droughty Too steep for surface application	1.00 0.16 0.00
In: Inavale-----	100	Very limited Filtering capacity Leaching limitation Droughty	1.00 0.45 0.04	Very limited Filtering capacity Droughty	1.00 0.04	Very limited Filtering capacity Droughty	1.00 0.04
INT: Aquolls-----	100	Very limited Depth to saturated zone Low adsorption Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Low adsorption Ponding	1.00 1.00 1.00	Very limited Depth to saturated zone Low adsorption Ponding	1.00 1.00 1.00
Ks: Kenesaw-----	100	Not limited		Not limited		Not limited	
KsB: Kenesaw-----	100	Not limited		Not limited		Not limited	
KsC: Kenesaw-----	100	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00	Very limited Too steep for surface application Too steep for sprinkler application	1.00 0.10
KSz: Kenesaw-----	70	Not limited		Not limited		Not limited	
Cozad-----	30	Somewhat limited Sodium content Salinity	0.92 0.06	Somewhat limited Sodium content	0.92	Somewhat limited Sodium content	0.92
L: Loretto-----	100	Somewhat limited Too acid Filtering capacity	0.11 0.00	Somewhat limited Too acid Filtering capacity	0.42 0.00	Somewhat limited Too acid Filtering capacity	0.42 0.00
La: Lamo-----	100	Very limited Depth to saturated zone Flooding	1.00 0.60	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Flooding	1.00 0.60
LB: Libory-----	70	Very limited Filtering capacity Depth to saturated zone Leaching limitation Restricted permeability	1.00 0.95 0.45 0.41	Very limited Filtering capacity Depth to saturated zone Restricted permeability	1.00 0.95 0.31	Very limited Filtering capacity Depth to saturated zone Restricted permeability	1.00 0.95 0.31
Boelus-----	30	Very limited Filtering capacity Leaching limitation	1.00 0.45	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00
LC: Libory-----	75	Very limited Filtering capacity Depth to saturated zone Leaching limitation	1.00 0.95 0.45	Very limited Filtering capacity Depth to saturated zone	1.00 0.95	Very limited Filtering capacity Depth to saturated zone	1.00 0.95
Boelus-----	25	Very limited Filtering capacity Leaching limitation	1.00 0.45	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00

AGRICULTURAL WASTE MANAGEMENT--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Application of manure and food- processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
M: Fluvaquents-----	100	Very limited Depth to saturated zone Flooding Runoff limitation	1.00 1.00 0.40	Very limited Depth to saturated zone Flooding	1.00 1.00	Very limited Depth to saturated zone Flooding	1.00 1.00
M-W: Miscellaneous Water-	100	Not rated		Not rated		Not rated	
NsD3: Nuckolls Variant----	100	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Too steep for surface application	1.00
		Restricted permeability	0.41	Restricted permeability	0.31	Too steep for sprinkler application Restricted permeability	1.00 0.31
Oa: Ovina-----	100	Very limited Filtering capacity Depth to saturated zone	1.00 1.00	Very limited Filtering capacity Depth to saturated zone	1.00 1.00	Very limited Filtering capacity Depth to saturated zone	1.00 1.00
ObB: Ortello-----	100	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00
Oe: Ord-----	100	Very limited Filtering capacity Depth to saturated zone Droughty	1.00 0.95 0.00	Very limited Filtering capacity Depth to saturated zone Droughty	1.00 0.95 0.00	Very limited Filtering capacity Depth to saturated zone Droughty	1.00 0.95 0.00
Of: Ord-----	100	Very limited Filtering capacity Depth to saturated zone Droughty	1.00 0.95 0.01	Very limited Filtering capacity Depth to saturated zone Droughty	1.00 0.95 0.01	Very limited Filtering capacity Depth to saturated zone Droughty	1.00 0.95 0.01
Ok: O'Neill-----	100	Very limited Filtering capacity Depth to dense layer Droughty Too acid	1.00 1.00 0.63 0.11	Very limited Filtering capacity Droughty Too acid	1.00 0.63 0.42	Very limited Filtering capacity Droughty Too acid	1.00 0.63 0.42
OrA: Ortello-----	100	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00
Ot: Ortello-----	100	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00
OtB: Ortello-----	100	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Very limited Filtering capacity Too steep for surface application	1.00 0.08
OxD: Ortello-----	60	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Too steep for surface application	1.00
		Filtering capacity	0.00	Filtering capacity	0.00	Too steep for sprinkler application Filtering capacity	1.00 0.00

AGRICULTURAL WASTE MANAGEMENT--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Coly-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Too steep for surface application	1.00
RB: Coly-----	100	Very limited Slope	1.00	Very limited Slope	1.00	Too steep for sprinkler application	1.00
Ru: Rusco-----	100	Somewhat limited Flooding	0.60	Very limited Flooding	1.00	Very limited Too steep for surface application	1.00
		Depth to saturated zone	0.43	Depth to saturated zone	0.43	Too steep for sprinkler application	1.00
		Restricted permeability	0.30	Restricted permeability	0.22		
Sm: Simeon-----	100	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00		
		Leaching limitation	0.45				
SS: Silver Creek-----	65	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00
		Depth to saturated zone	0.95	Depth to saturated zone	0.95	Depth to saturated zone	0.95
		Runoff limitation	0.40				
		Salinity	0.01				
Slickspots-----	35	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00
		Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
		Runoff limitation	0.40				
		Salinity	0.28				
Sy: Hobbs-----	100	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
TfB: Thurman-----	100	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00
		Leaching limitation	0.45			Too steep for surface application	0.08
ThA: Thurman-----	100	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00
		Leaching limitation	0.45	Droughty	0.33	Droughty	0.33
		Droughty	0.33				
ThB: Thurman-----	100	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00
		Leaching limitation	0.45	Droughty	0.33	Droughty	0.33
		Droughty	0.33			Too steep for surface application	0.08
Ty: Almeria-----	100	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		Filtering capacity	1.00	Flooding	1.00	Filtering capacity	1.00
		Flooding	0.60	Filtering capacity	1.00	Flooding	0.60
		Runoff limitation	0.40				

AGRICULTURAL WASTE MANAGEMENT--Continued
Howard County, Nebraska

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Application of manure and food- processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
UsC: Uly-----	100	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00	Very limited Too steep for surface application Too steep for sprinkler application	1.00 0.10
UsD: Uly-----	100	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84	Very limited Too steep for surface application Too steep for sprinkler application	1.00 0.89
VaC: Valentine-----	100	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Very limited Too steep for surface application	1.00
		Slope	0.84	Slope	0.84	Filtering capacity	1.00
		Droughty	0.77	Droughty	0.77	Too steep for sprinkler application	0.89
		Leaching limitation	0.45			Droughty	0.77
VTD: Valentine-----	65	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Very limited Too steep for surface application	1.00
		Slope	0.84	Slope	0.84	Filtering capacity	1.00
		Droughty	0.77	Droughty	0.77	Too steep for sprinkler application	0.89
		Leaching limitation	0.45			Droughty	0.77
Thurman-----	35	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Very limited Too steep for surface application	1.00
		Leaching limitation	0.45	Droughty	0.33	Filtering capacity	1.00
		Droughty	0.33	Slope	0.04	Droughty	0.33
		Slope	0.04			Too steep for sprinkler application	0.22
W: Water-----	100	Not rated		Not rated		Not rated	

In this section, hydric soils are defined and described and the hydric soils in the survey area are listed. The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for each of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 1995). These criteria are used to identify a phase of a soil series that normally is associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (USDA, 1999) and "Keys to Soil Taxonomy" (USDA, 1998) and in the "Soil Survey Manual" (USDA, 1993).

If soils are wet enough for a long enough period to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils in this survey area are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and others, 1996).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

Map units in the Hydric Soil Interpretations table meet the definition of hydric soils and, in addition, have at least one of the hydric soil indicators. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 1996).

Map units that are made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

These map units, in general, do not meet the definition of hydric soils because they do not have one of the hydric soil indicators. A portion of these map units, however, may include hydric soils. Onsite investigation is recommended to determine whether hydric soils occur and the location of the included hydric soils.

HYDRIC SOIL INTERPRETATIONS
HYDRIC SOILS LIST
Howard County, Nebraska

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All mapunits are displayed regardless of hydric status and are listed in alpha-numeric order by mapunit symbol. The "Hydric Soils Criteria" columns indicate the conditions that caused the mapunit component to be classified as "Hydric" or "Non-Hydric". These criteria are defined in "Hydric Soils of the United States" (USDA Miscellaneous Publication No. 1491, June, 1991). See the "Criteria for Hydric Soils" endnote to determine the meaning of these columns. Spot symbols are footnoted at the end of the table.

Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
2Hb: HOBBS SILT LOAM, OCCASIONALLY FLOODED	HOBBS	No	drainageway	---	---	---	---
2ThA: THURMAN LOAMY FINE SAND, LOAMY SUBSTRATUM, 0 TO 3 PERCENT SLOPES	THURMAN	No	hillslope, terrace	---	---	---	---
2To: TRYON SOILS, DRAINED	ALMERIA	Yes	flood plain	2B3	YES	NO	NO
AED: ARENTS, EARTHEN DAM	ARENTS, EARTHEN DAM	Unranked	---	---	---	---	---
B: BLOWN-OUT LAND	PSAMMENTS	Unranked	---	---	---	---	---
Boa: BOEL LOAMY FINE SAND	BOEL ALMERIA	No Yes	flood plain flood plain	---	---	---	---
Bob: BOEL FINE SANDY LOAM	BOEL ALMERIA	No Yes	flood plain flood plain	2B3	YES	NO	NO
Boc: BOEL LOAM	BOEL ALMERIA	No Yes	flood plain flood plain	---	---	---	---
CbC: COLY SILT LOAM, 5 TO 11 PERCENT SLOPES	COLY	No	interfluve	---	---	---	---
CbD: COLY SILT LOAM, 11 TO 31 PERCENT SLOPES	COLY	No	---	---	---	---	---
CUD: COLY-ULY COMPLEX, 15 TO 31 PERCENT SLOPES	COLY ULY	No No	---	---	---	---	---
Da: DARR FINE SANDY LOAM	DARR	No	flood plain	---	---	---	---
Db: DARR SILT LOAM	DARR	No	flood plain	---	---	---	---
De: DETROIT SILT LOAM, 0 TO 1 PERCENT SLOPES	DETROIT	No	flood plain	---	---	---	---
Ea: ELSMERE LOAMY FINE SAND	ELSMERE ALMERIA, DRAINED	No Yes	terrace swale	---	---	---	---
Gg: GIBBON SILT LOAM	GIBBON ALMERIA	No Yes	flood plain flood plain	---	---	---	---
Gk: GRIGSTON SILT LOAM	GRIGSTON ALMERIA	No Yes	flood plain flood plain	2B3	YES	NO	NO
GP: GRAVEL PIT	PITS	Unranked	---	---	---	---	---
GsC3: GEARY SOILS, 7 TO 11 PERCENT SLOPES, SEVERELY ERODED	NUCKOLLS VARIANT	No	---	---	---	---	---
GsD3: GEARY SOILS, 11 TO 15 PERCENT SLOPES, SEVERELY ERODED	NUCKOLLS VARIANT	No	---	---	---	---	---
Ha: HALL SILT LOAM, 0 TO 1 PERCENT SLOPES	HALL	No	terrace	---	---	---	---
Hb: HOBBS SILT LOAM, 0 TO 1 PERCENT SLOPES	HORD	No	terrace	---	---	---	---
HbA: HOBBS SILT LOAM, 1 TO 3 PERCENT SLOPES	HORD	No	terrace	---	---	---	---
HbB: HOBBS SILT LOAM, 3 TO 5 PERCENT SLOPES	HORD	No	---	---	---	---	---
Hd: HORD SILT LOAM, 0 TO 1 PERCENT SLOPES	HORD	No	terrace	---	---	---	---
Hg: HOLDER SILT LOAM, 0 TO 1 PERCENT SLOPES	HOLDREGE	No	---	---	---	---	---
HgA: HOLDER SILT LOAM, 1 TO 3 PERCENT SLOPES	HOLDREGE	No	---	---	---	---	---

HYDRIC SOIL INTERPRETATIONS
HYDRIC SOILS LIST
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All mapunits are displayed regardless of hydric status and are listed in alpha-numeric order by mapunit symbol. The "Hydric Soils Criteria" columns indicate the conditions that caused the mapunit component to be classified as "Hydric" or "Non-Hydric". These criteria are defined in "Hydric Soils of the United States" (USDA Miscellaneous Publication No. 1491, June, 1991). See the "Criteria for Hydric Soils" endnote to determine the meaning of these columns. Spot symbols are footnoted at the end of the table.

Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
HgB2: HOLDER SILT LOAM, 3 TO 5 PERCENT SLOPES, ERODED	HOLDREGE	No	---	---	---	---	---
HgC: HOLDER SILT LOAM, 5 TO 11 PERCENT SLOPES	HOLDREGE	No	---	---	---	---	---
HpC2: HOLDER SILTY CLAY LOAM, 5 TO 11 PERCENT SLOPES, ERODED	HOLDREGE	No	---	---	---	---	---
HpC3: HOLDER SILTY CLAY LOAM, 5 TO 11 PERCENT SLOPES, SEVERELY ERODED	HOLDREGE VARIANT	No	---	---	---	---	---
Hs: HASTINGS SILT LOAM, 0 TO 1 PERCENT SLOPES	HARNEY	No	---	---	---	---	---
Ia: INAVALE LOAM	INAVALE	No	flood plain	---	---	---	---
If: INAVALE FINE SAND	INAVALE	No	flood plain	---	---	---	---
Ig: INAVALE LOAMY FINE SAND	INAVALE	No	flood plain	---	---	---	---
In: INAVALE FINE SANDY LOAM	INAVALE	No	flood plain	---	---	---	---
INT: AQUOLLS	AQUOLLS	Yes	depression	2B3,3	YES	NO	YES
Ks: KENESAW SILT LOAM, 0 TO 1 PERCENT SLOPES	KENESAW	No	---	---	---	---	---
KsB: KENESAW SILT LOAM, 1 TO 5 PERCENT SLOPES	KENESAW	No	---	---	---	---	---
KsC: KENESAW SILT LOAM, 5 TO 11 PERCENT SLOPES	KENESAW	No	---	---	---	---	---
KSz: KENESAW-SLICKSPOTS COMPLEX	KENESAW	No	terrace	---	---	---	---
L: LORETTO COMPLEX, 0 TO 5 PERCENT SLOPES	LORETTO	No	terrace	---	---	---	---
La: LAMO SILT LOAM	LAMO	No	terrace	---	---	---	---
LB: LIBORY-BOELUS FINE SANDS	LIBORY	No	terrace	---	---	---	---
LC: LIBORY-BOELUS LOAMY FINE SANDS	BOELUS	No	terrace	---	---	---	---
M: MARSH	FLUVAQUENTS	Yes	flood plain	2B3,3	YES	NO	YES
M-W: MISCELLANEOUS WATER, SEWAGE LAGOON	MISCELLANEOUS WATER	---	---	---	---	---	---
NsD3: NUCKOLLS SOILS, 15 TO 31 PERCENT SLOPES, SEVERELY ERODED	NUCKOLLS VARIANT	No	---	---	---	---	---
Oa: OVINA LOAMY FINE SAND	OVINA	No	terrace	---	---	---	---
ObB: ORTELLO LOAMY FINE SAND, 1 TO 5 PERCENT SLOPES	ORTELLO	No	terrace	---	---	---	---
Oe: ORD LOAM	ORD ALMERIA	No Yes	terrace flood plain	---	---	---	---
Of: ORD FINE SANDY LOAM	ORD ALMERIA	No Yes	---	---	---	---	---
Ok: O'NEILL LOAM, 0 TO 3 PERCENT SLOPES	O'NEILL	No	flood plain terrace	2B3 ---	YES ---	NO ---	NO ---

HYDRIC SOIL INTERPRETATIONS
HYDRIC SOILS LIST
Howard County, Nebraska

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Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
OrA: ORTELLO FINE SANDY LOAM, 0 TO 1 PERCENT SLOPES	ORTELLO	No	terrace	---	---	---	---
Ot: ORTELLO LOAM, 0 TO 1 PERCENT SLOPES	ORTELLO	No	terrace	---	---	---	---
OtB: ORTELLO LOAM, 1 TO 5 PERCENT SLOPES	ORTELLO	No	terrace	---	---	---	---
OxD: ORTELLO-COLY COMPLEX, 15 TO 31 PERCENT SLOPES	ORTELLO	No	---	---	---	---	---
	COLY	No	---	---	---	---	---
RB: ROUGH BROKEN LAND LOESS	COLY	No	---	---	---	---	---
Ru: RUSCO SILT LOAM	RUSCO	No	terrace	---	---	---	---
	PERCHED WT PONDED SOILS	Yes	depression	2A	YES	NO	NO
		Yes	depression	3, 2A	YES	NO	YES
Sm: SIMEON LOAMY SAND, 0 TO 3 PERCENT SLOPES	SIMEON	No	terrace	---	---	---	---
SS: SILVER CREEK-SLICKSPOTS COMPLEX	SILVER CREEK	No	terrace	---	---	---	---
	SLICKSPOTS	No	---	---	---	---	---
Sy: SILTY ALLUVIAL LAND	HOBBS	No	drainageway	---	---	---	---
TfB: THURMAN FINE SAND, 0 TO 5 PERCENT SLOPES	THURMAN	No	terrace	---	---	---	---
	ALMERIA, DRAINED	Yes	swale	2B2	YES	NO	NO
ThA: THURMAN LOAMY FINE SAND, 0 TO 3 PERCENT SLOPES	THURMAN	No	terrace	---	---	---	---
ThB: THURMAN LOAMY FINE SAND, 3 TO 5 PERCENT SLOPES	THURMAN	No	terrace	---	---	---	---
Ty: TRYON LOAM	ALMERIA	Yes	flood plain	3, 2B3	YES	NO	YES
UsC: ULY SILT LOAM, 5 TO 11 PERCENT SLOPES	ULY	No	---	---	---	---	---
UsD: ULY SILT LOAM, 11 TO 15 PERCENT SLOPES	ULY	No	---	---	---	---	---
VaC: VALENTINE FINE SAND, ROLLING	VALENTINE	No	---	---	---	---	---
VTD: VALENTINE AND THURMAN SOILS, 0 TO 17 PERCENT SLOPES	VALENTINE	No	---	---	---	---	---
	THURMAN	No	---	---	---	---	---
W: WATER	WATER	Unranked	---	---	---	---	---

HYDRIC SOIL INTERPRETATIONS
HYDRIC SOILS LIST
Howard County, Nebraska

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All mapunits are displayed regardless of hydric status and are listed in alpha-numeric order by mapunit symbol. The "Hydric Soils Criteria" columns indicate the conditions that caused the mapunit component to be classified as "Hydric" or "Non-Hydric". These criteria are defined in "Hydric Soils of the United States" (USDA Miscellaneous Publication No. 1491, June, 1991). See the "Criteria for Hydric Soils" endnote to determine the meaning of these columns. Spot symbols are footnoted at the end of the table.

Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria

FOOTNOTE: There may be small areas of included soils or miscellaneous areas that are significant to use and management of the soil; yet are too small to delineate on the soil map at the map's original scale. These may be designated as spot symbols and are defined in the published Soil Survey Report or the USDA-NRCS Technical Guide, Part II.

Areas mapped as water or any map unit that contains one of the following conventional symbols is considered a hydric soil map unit: marshes or swamps; wet spots; depressions; streams, lakes and ponds.

1. All Histosols except Folists, or
2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Aquisalids, Pachic subgroups, or Cumulic subgroups that are:
 - a. Somewhat poorly drained with a water table equal to 0.0 foot (ft) from the surface during the growing season, or
 - b. poorly drained or very poorly drained and have either:
 - (1) water table equal to 0.0 ft during the growing season if textures are coarse sand, sand, or fine sand in all layers within 20 inches (in), or for other soils
 - (2) water table at less than or equal to 0.5 ft from the surface during the growing season if permeability is equal to or greater than 6.0 in/hour (h) in all layers within 20 in, or
 - (3) water table at less than or equal to 1.0 ft from the surface during the growing season if permeability is less than 6.0 in/h in any layer within 20 in, or
3. Soils that are frequently ponded for long duration or very long duration during the growing season, or
4. Soils that are frequently flooded for long duration or very long duration during the growing season.

HIGHLY ERODIBLE LANDS REPORT

Survey Area- HOWARD COUNTY, NEBRASKA

Map Symbol	Soil Mapunit Name	HEL Classifications		
		C=30	R=125	wnd wat mu
2ThA	THURMAN LOAMY FINE SAND, LOAMY SUBSTRATUM, 0 TO 3 PERCENT SLOPES	1	3	1
B	BLOWN-OUT LAND	1	2	1
Boa	BOEL LOAMY FINE SAND	1	3	1
Bob	BOEL FINE SANDY LOAM	3	3	3
Boc	BOEL LOAM	3	3	3
CUD	COLY-ULY COMPLEX, 15 TO 31 PERCENT SLOPES	3	1	1
CbC	COLY SILT LOAM, 5 TO 11 PERCENT SLOPES	3	2	2
CbD	COLY SILT LOAM, 11 TO 31 PERCENT SLOPES	3	1	1
Da	DARR FINE SANDY LOAM	3	3	3
Db	DARR SILT LOAM	3	3	3
De	DETROIT SILT LOAM, 0 TO 1 PERCENT SLOPES	3	3	3
Ea	ELSMERE LOAMY FINE SAND	1	3	1
Gg	GIBBON SILT LOAM	3	3	3
Gk	GRIGSTON SILT LOAM	3	3	3
GsC3	GEARY SOILS, 7 TO 11 PERCENT SLOPES, SEVERELY ERODED	3	2	2
GsD3	GEARY SOILS, 11 TO 15 PERCENT SLOPES, SEVERELY ERODED	3	1	1
Ha	HALL SILT LOAM, 0 TO 1 PERCENT SLOPES	3	3	3
Hb	HOBBS SILT LOAM, 0 TO 1 PERCENT SLOPES	3	3	3
HbA	HOBBS SILT LOAM, 1 TO 3 PERCENT SLOPES	3	3	3
HbB	HOBBS SILT LOAM, 3 TO 5 PERCENT SLOPES	3	2	2
Hd	HORD SILT LOAM, 0 TO 1 PERCENT SLOPES	3	3	3
Hg	HOLDER SILT LOAM, 0 TO 1 PERCENT SLOPES	3	3	3
HgA	HOLDER SILT LOAM, 1 TO 3 PERCENT SLOPES	3	3	3
HgB2	HOLDER SILT LOAM, 3 TO 5 PERCENT SLOPES, ERODED	3	3	3
HgC	HOLDER SILT LOAM, 5 TO 11 PERCENT SLOPES	3	2	2
HpC2	HOLDER SILTY CLAY LOAM, 5 TO 11 PERCENT SLOPES, ERODED	3	2	2
HpC3	HOLDER SILTY CLAY LOAM, 5 TO 11 PERCENT SLOPES, SEVERELY ERODED	3	2	2
Hs	HASTINGS SILT LOAM, 0 TO 1 PERCENT SLOPES	3	3	3
Ia	INAVALE LOAM	3	3	3
If	INAVALE FINE SAND	1	3	1
Ig	INAVALE LOAMY FINE SAND	1	3	1
In	INAVALE FINE SANDY LOAM	3	3	3
KSz	KENESAW-SLICKSPOTS COMPLEX	3	3	3
Ks	KENESAW SILT LOAM, 0 TO 1 PERCENT SLOPES	3	3	3
KsB	KENESAW SILT LOAM, 1 TO 5 PERCENT SLOPES	3	2	2
KsC	KENESAW SILT LOAM, 5 TO 11 PERCENT SLOPES	3	2	2
L	LORETTO COMPLEX, 0 TO 5 PERCENT SLOPES	3	3	3
LB	LIBORY-BOELUS FINE SANDS	1	3	1
LC	LIBORY-BOELUS LOAMY FINE SANDS	1	3	1
La	LAMO SILT LOAM	3	3	3
M	MARSH	3	3	3
NsD3	NUCKOLLS SOILS, 15 TO 31 PERCENT SLOPES, SEVERELY ERODED	3	1	1
Oa	OVINA LOAMY FINE SAND	1	3	1
ObB	ORTELLO LOAMY FINE SAND, 1 TO 5 PERCENT SLOPES	1	3	1
Oe	ORD LOAM	3	3	3
Of	ORD FINE SANDY LOAM	3	3	3
Ok	O'NEILL LOAM, 0 TO 3 PERCENT SLOPES	3	3	3
OrA	ORTELLO FINE SANDY LOAM, 0 TO 1 PERCENT SLOPES	3	3	3
Ot	ORTELLO LOAM, 0 TO 1 PERCENT SLOPES	3	3	3
OtB	ORTELLO LOAM, 1 TO 5 PERCENT SLOPES	3	2	2
OxD	ORTELLO-COLY COMPLEX, 15 TO 31 PERCENT SLOPES	1	1	1
RB	ROUGH BROKEN LAND LOESS	3	1	1
Ru	RUSCO SILT LOAM	3	3	3
SS	SILVER CREEK-SLICKSPOTS COMPLEX	3	3	3

Sm	SIMEON LOAMY SAND, 0 TO 3 PERCENT SLOPES	1	3	1
Sy	SILTY ALLUVIAL LAND	3	3	3
TfB	THURMAN FINE SAND, 0 TO 5 PERCENT SLOPES	1	3	1
ThA	THURMAN LOAMY FINE SAND, 0 TO 3 PERCENT SLOPES	1	3	1
ThB	THURMAN LOAMY FINE SAND, 3 TO 5 PERCENT SLOPES	1	3	1
Ty	TRYON LOAM	3	3	3
UsC	ULY SILT LOAM, 5 TO 11 PERCENT SLOPES	3	2	2
UsD	ULY SILT LOAM, 11 TO 15 PERCENT SLOPES	3	1	1
VTD	VALENTINE AND THURMAN SOILS, 0 TO 17 PERCENT SLOPES	1	2	1
VaC	VALENTINE FINE SAND, ROLLING	1	2	1